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CLINICAL OBSERVATIONS

ON THE

PATHOLOGY AND TREATMENT

OF

CONTINUED FEVER,

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FROM CASES OCCURRING IN THE

MEDICAL PRACTICE OF ST. BARTHOLOMEW'S HOSPITAL.

BY

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TO THE

PHYSICIANS OF ST. BARTHOLOMEW'S HOSPITAL,

CLEMENT HUE, M.D.,

GEORGE LEITH ROUPELL, M.D. F.R.S.,

AND PARTICULARLY TO

GEORGE BURROWS, M.D. F.R.S.,

AND

P. M. LATHAM, M.D.

(Late Physician to that Hospital),

WITH EVERY FEELING OF ESTEEM AND REGARD
WHICH THEIR SUPERIOR ATTAINMENTS COULD COMMAND IN A PUPIL,
OR THEIR UNVARYING KINDNESS AND ATTENTION AWAKEN IN A FRIEND,
THESE FIRST FRUITS OF THE STUDIES WHICH THEY HAVE
SO UNIFORMLY ENCOURAGED, AND BEEN ALWAYS
SO READY TO ASSIST, ARE

Dedicated,

BY THE AUTHOR.

PREFACE.

Of the cases narrated in the following pages, several have appeared already in the Lancet, as clinical reports of cases of Fever, forming part of a series in which it was proposed to delineate the principal pathological characters, and the chief indications for treatment, of the diseases which are of most importance and most common occurrence in the medical practice of a large Hospital. In this view they are now republished in a connected form, with such alterations of arrangement and additions as the circumstances seemed to require, as a work either complete in itself or constituting a portion of a larger one, should opportunities occur of illustrating on the same plan some of the other principal subjects which engage the attention of the student of pathology.

April 1848.

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ERRATUM.—Page 133, line 29, *for* XXII. *read* XXIII.

NOTE.—The patient whose temporary restoration after collapse is described at page 87, sank eleven weeks after the first commencement of the fever. The sore on her back had been slowly healing, but was still of large size. She had fatty degeneration of the heart, purulent infiltration of the kidneys, with chronic suppurative inflammation of the pelvis of the right kidney, its ureter, and the bladder. There were old adherent coagula in the branches of the pulmonary artery, and many follicular ulcers of the stomach. The ileum was healthy.

CLINICAL OBSERVATIONS,

&c.

CHAPTER I.

PRELIMINARY REMARKS.—ON FEVER IN GENERAL.—DIVISIONS OF THE SUBJECT.

Fever, in some form or other, is rarely absent from the physicians' wards of St. Bartholomew's Hospital, but the form prevalent at one season is frequently so different from those which the preceding or following years present, that it requires a very wide definition to include them all under one name. This difference may be such as only appears by means of analysis,—in the comparative frequency of the various local complications, for instance, or it may be such as would strike the most casual observer, in the alteration of all the external features of the disease. A slight ailment, such as scarcely requires confinement to bed, a state of the most complete prostration requiring the constant exhibition of the most active stimulants, or a condition which, but for the very common occurrence of the form last noticed, and the general tendency to assume it under any active treatment would often tempt to the employment of venesection;—such may be the present condition, and as varied may be the external appearance of the majority of the patients who, in successive years, are said to be suffering from fever. The disease may be essentially different in the cases thus combined under one name, but that one name suffices for all purposes of treatment: the practical knowledge of differences too fleeting,

or too abstruse, (yet who can say too unimportant?) for a nomenclature, is the ample reward of continued clinical observation alone.

On the question, whether more than one actually different disease be not included under the term fever, so commonly used with regard to this particular class of patients of London Hospitals, it would be out of the scope of the following pages to enter, were it even within the author's power to give a satisfactory solution of it. Only thus far.—1. The type of an epidemic, being of course that of the majority, is general, not universal, and among the exceptional cases occurring in any one year may be found illustrations of the most varied types of fever, such as may present themselves as the ordinary form during other years. 2. But these varieties cannot always reproduce themselves, for of several members of a family living under the same circumstances and affected with fever, all have not by any means invariably the same form of the disease, nor, when it spreads in a ward from one patient to another, is the like disease always reproduced. 3. And the distinctions between these forms seem to rest on no sure foundations, for even the important distinction, to limit ourselves to one instance, as to whether Peyer's glands are affected or not, gives no available grounds during life for any classification. In the midst of an epidemic generally characterized by such lesions, cases are met with where the intestines are quite healthy, and conversely: and the symptoms which divide these cases, which enable us to predict the presence or absence of such lesions, are merely incidental.*

* As concerns the third consideration, it is necessary to notice a difference between the continued fever of London and that of Paris. The average age of the patients affected is nearly the same, (Louis, Fièvre Typhoïde, II. p. 353), but those attacked in London are generally residents, or such as have arrived within two or three days, after walking, under circumstances of great dis-

It cannot be denied that there may be a real essential difference between these forms, or that the knowledge of these differences would help towards treatment; far from it: it would be discouraging to think that this investigation must for ever be baffled at such a distance from the complete solution of the question; but such is at present the case with regard to what is called indiscriminately typhus or continued fever in London, the latter term being generally applied to the more active, the former to the lower descriptions of the disease.

Assuming, on these terms, the identity of the diseases classed together as fever, we have to seek their common features of resemblance, not in the local affections, which observation shews to be so very variable, but in some affection of the system generally. The differences are striking enough to force themselves on the attention, but the points of resemblance have often to be looked for. There is certainly something very characteristic of continued fever in the heavy half-drunken aspect of the patients during the first days of the disease, and even in the pale vacant face presented during convalescence, which strikes the most casual observer; but a little mismanagement in the treatment, or, too often, the natural course of events, will bring out a much stronger resemblance among all the forms, and the identity of the diseases on which hung inflammation of the lungs, or of the bowels, or of the brain, an ailment too trivial to lay up for, or an attack threatening present death from its first commencement, shall be undeniable, most obvious when the case is most most hopeless. For each disease has its own form of death, and though fever has more than one, in the period or manner of its occurrence it stamps its character on them all. Death by fever with pulmonary affection has a character essentially different from those of death by bronchitis, or pneumonia, or

tress, from the country, while it is known that the subjects of the Fièvre Typhoïde have generally resided in Paris for the few previous months only. (Op. cit. II. p. 357).

many forms of phthisis, and death by fever with disease of the bowels, or, in a less degree, of the brain, is very different from that which follows any of the ordinary fatal affections of these parts. But it is not in the dry black tongue and crusted teeth, or in any one symptom, however striking, that we are to look for this resemblance; it is in the aggregate of them all, and in the repeated occurrence of these symptoms, accompanying death after the most varied structural lesions in fever, that we are to recognize that powerful influence in which the characters of all merely local affections are merged. It cannot be too strongly urged, that there is not any single symptom which constitutes fever; it is the inference from many symptoms, and the constant recurrence of a series of them under such various circumstances that they cannot be referred to any single local disease, which has claimed for them the consideration of independence of the many ordinary diseases with which they may co-exist, and has placed them as indications of the existence of an influence on which the local changes themselves depend, which is modified, indeed, according to the varieties of the local affections, but never more powerfully asserts its superiority to them than in the last struggle for life.

But, taking the existence of this abstract something as a first postulate, can we go on and build up a rational system of fever, explaining how one organ is first affected and then another, and tracing all the links to the restoration of health or till the chain is broken in death? It seems not. We may readily from a tabular analysis shew the average order of the succession of symptoms; but the more carefully this is done, the more abundant evidence does it supply of the unsoundness of such a system. At each step we have frequently to recognize a supposed effect existing before its cause has developed itself, and the possible latency of the cause does not remove the difficulty, for the second is referred to the action, not to the mere existence of the first in all such hypotheses. The fact is, that the various complications do not succeed each other in any regular order;

the severity of one is not directly, but rather inversely proportionate to the severity of another: they are the diverging branches, not the successive joints of one trunk.

Whatever view we may take of the local diseases which accompany continued fever in most cases—calling them secondary affections or incidental complications as we will—denying their claim to be considered as more than merely accessories, it is impossible to deny their importance in all that relates to the treatment of fever. Much of all practical works on this subject is occupied with the consideration of their varieties and appropriate treatment; little by that of the primary disease. And it must be so: the essential nature of fever is only to be approached, if at all, through these its local manifestations. These, as varying from the ordinary diseases of the same part, and requiring a different treatment, have each to be fully described, and in the study of their symptoms, and the application of remedies to their relief, lies the greater part of all that we can do for or know of fever. The essential nature of fever may vary, but it is in these that we detect its variations, and to these that we apply our remedies.

Even abstractedly considered, the exceeding interest of a study of this sort is apparent, claiming as it does the exercise of our best faculties of observation to catch the light from each case as it passes before us, and apply it to the solution of each other fresh problem that may arise; to generalize our growing experience so that we may cope with greater difficulties; still dwelling on what each case presents dependent on the general laws of disease, and not on the particular epidemic, and still allowing for all the changes that the season of the year or lapse of time may effect in the type of the disease, which may change before our eyes, even while we are seeking to know it. But interest is a poor word to express the feeling which should prompt all those studies where human suffering or death are concerned, and which would ensure to so important a disease a

large share of attention, even were its study involved in merely speculative notions of the essential nature of fever, and unconnected with that of other disease. Such, however, is far from being the case: the results of treatment of no other disease are as immediately and generally applicable as of this; from no one disease can so much be learned, and so quickly, as from fever. Within a few days the same case may furnish the most marked illustrations of the general principles of treatment, and of the effects of several particular remedies; there is no palling of the interest, no waiting; the whole series of experiments is transacted in a few days. Were the hope nearer realization than it is, that improved sanatory regulations, so successfully employed where employed at all, might reduce continued fever, the present companion of poverty and wretchedness, to a much less prominent place in the list of diseases, or had we some means as powerful in controlling it as we have with respect to a disease once quite as formidable as typhus—intermittent fever—still the observations of its symptoms, though no longer important as far as concerned fever itself, would hold a high place in relation to pathology generally, and would constitute the best field of instruction to the student.

The subject naturally divides itself, according to the previous considerations, into two parts,—the essential fever, and its secondary local affections. An exact analysis of a large number of fever cases shows how one complication after another may be excluded from the definition of fever, till something remains which defies definition. Such—how little must be our knowledge of it!—is essential fever. But these complications are what we have chiefly to do with, and as in them only can fever be treated in our inability to reach the essence of the disease, by them should the arrangement of all we know be suggested, modified by the fact that a case may pass from one to another division of any such scheme; that, after fever, dissection may

show the most active disorganization of nearly all the organs of one body, while in another no detectible organic changes may intervene between the action of the disease and death.

Of the different ways in which the subject may be treated, none appeared so unobjectionable as the illustration of the important points by the details of particular cases, arranged in groups according to the organs on which the stress of the disease lay. As regards essential fever, apart from local complications, the most striking instances have been selected at whatever time they may have occurred, but with respect to the complications, of the two modes in which they might be investigated,—namely, by selecting the most marked instances of each variety of fever from the practice of several years, or by narrating in some sort the history of one particular epidemic,—the last seemed on the whole preferable; for though the single symptoms, as such, affecting particular organs, may be more fully displayed by the first method, the disease as a whole, and as affecting life, is better understood by the second, where the knowledge of other cotemporaneous cases puts us on the same footing with the practitioner, and explains more clearly than any mere statement could do the whole object of the treatment,—what was to be prevented, as well as what was to be done. The epidemic of 1846 was well adapted for this purpose on account of the variety of the complications. Illustrations of affection of the brain, which were less marked during this year, have been supplied from the practice of 1843; the application of which, as well as of a few other cases from other years, to the investigation of single points, has been assisted, where it seemed necessary, by an outline of a few features of the then prevalent type of fever. The importance of all the subjects which are discussed incidentally, in connection with the symptoms or morbid appearances of particular cases, will be a sufficient apology for the seeming digressions which occur from time to time.

The last chapter has been devoted to the description of the general features of a very unusual form of fever, which mani-

fested itself while the subject of the earlier pages was under consideration, and the particulars of which seemed too important, and too closely connected, to be distributed through the other chapters, in their appropriate places, as occasion offered. The apparent discordance of some facts observed during the commencement of this epidemic with what the author had been led to infer from the observations of other epidemics, has demanded a closer investigation on his own part; and now, though its further progress has removed those doubts from his own mind, it seems more agreeable to the spirit of inquiry inculcated in the following pages, to furnish the reader with the general facts, such as they are, than to ask his assent to a bare conclusion from them.

Besides the more important particulars on which life and death depend, there are a few of less moment, but interesting on account of their frequency, for the display of which, however, it did not appear worth while to communicate the details of entire cases, as well on other accounts, as, lest the mention of a fact which was important only from its frequent recurrence, should pass unnoticed among symptoms which are always of importance. Such particulars have, therefore, been set down, all together, with the proper allowances, from an analysis of the notes of a large number of cases treated in this Hospital, during successive years. From the same analysis, other facts have been collected, with relation to particular symptoms, and especially to treatment. It would be idle to claim any higher value than this for the analysis, which it may seem presumptuous to have put forward at all, in the existence of so complete a document as is that of Louis, on the same subject generally; rather it should be excused in the present instance on the plea of the author's incompetency to set out with sufficient clearness, in each narration, that which was important in connection with other cases, as well as that which gave to each case its own particular interest. To mark with the more distinctness the difference of the type of fever described in the last,

from that which is the subject of the earlier chapters, this analysis has been placed immediately following the series to which it refers.

As concerns the Cases themselves, which have been employed as the best means of describing the succession of symptoms which constitute fever, for their accuracy I hold myself entirely responsible; they are, with the following few exceptions, the notes taken by myself daily at the bedside: a fact, from time to time, in addition to, or in correction of my own notes has been kindly supplied by the clinical clerks in charge of the patients, and three whole Cases (VI. XXXIV. XXXV.) have been transcribed from Dr. Burrows' case-books kept in the ward. They were originally published in the Lancet, in illustration of the pathology of continued fever, as a series of essays on the more important practical points, not as a treatise on the entire subject, and from the original design the author has endeavoured never unnecessarily to deviate; the arrangement has been altered, and other points have been discussed in connection with the additional cases, but the whole claims to be no more than a report of the treatment of fever, as observed by the author during the last nine years, more or less closely, in St. Bartholomew's Hospital. With the most unlimited access to the medical wards during this period, it is unnecessary to say that no important or frequently occurring form of the disease, or of its complications, could well have escaped notice: the difficulty was always not to discover but to select; the limits to observation lay, not in the subject matter, but in the time and strength for which the constant observation of nearly 150 cases of all diseases usually treated by physicians, always found full employment.

Lest the daily enumeration of the symptoms, and the remedies employed for their relief, should seem tediously minute, it is right to bear in mind that nothing is supposed to be prescribed without a sufficient reason, and an expectation of finding some effect from it in the further progress of the case. This

full enumeration is often necessary for the right understanding of the note of the following day; and as it always indicates the symptoms to which the physician's attention was turned in the treatment, it places the disease in its true light before the reader. Thus all the materials are at hand for forming an opinion of his own, and as I do not express my own assent to the propriety of the means adopted in each of the cases at all times, so neither do I ask his. The cases detailed are intended not as models, though as far as there can be models of treatment they may be found in Cases XXV. and XXVI. to which it needs no commendation of mine to direct the student's attention, but as studies from which more may be learned by observing in what respects treatment succeeded, or what it failed to effect, and inquiring into the reasons of every step, of each success and each failure, than by merely regarding each case as an illustration of a single point,—a dry additional fact to our knowledge on the subject. Nor, indeed, does there appear any other way by which the treatment of fever can be satisfactorily learned: it rests on no certain immutable rules, apart from individual cases, but comes slowly out of the observation of each symptom of those cases; and, for those who have not the inclination to enter into the details, I fear that the perusal of this, as of all works on pathology in the same sense of the term,—namely, the relations of altered structure or composition to altered function,—will be very unprofitable.

In concluding these remarks, there are three authors to whom I would acknowledge an obligation of greater amount than the occasional references in the following pages might seem to express. The works of Andral, Louis, and Chomel, have been the standard by which the cases occurring in St. Bartholomew's Hospital, year by year, have been examined: their remarks have called attention to points which might otherwise have passed unnoticed; and much of what is said here will be found, as a consequence of working by their light, to have been foreshadowed by them. The points of difference, rather than those of agreement, are referred to, for their observations need no

confirmation from mine : the objection, however, is not the less felt because it is not of a nature to be expressed on all occasions without incurring the charge of presumption. The work of Dr. Roupell, on Typhus, has been habitually referred to in the same way, as describing the form of fever observed in St. Bartholomew's Hospital at an earlier period than that to which my own observations refer; and a paper by Dr. West (Edinburgh Medical and Surgical Journal, Vol. L.) on the fever as prevailing there in 1838, has had on this account, exclusive of its own merits, particular claims to attention. The references to parallel cases speak for themselves.

CHAPTER II.

THE MORBID POISON OF FEVER—DIVISION OF DISEASES INTO LOCAL AND GENERAL—ESSENTIAL FEVER—CAUSING SUDDEN PROSTRATION—THE SAME MORE GRADUALLY INDUCED—CONTAGION—DURATION—INCUBATION OF FEVER.

Diseases, for the present purpose, may be considered as belonging to two classes, according as they have or have not a definite local seat; the former class including inflammation and other diseases of particular organs, the latter being made up of fevers and epidemic diseases—rheumatism, scurvy, and other diseases, so called, of the blood, and probably diabetes. The first class presents symptoms of two kinds, whose intensity bears a greater or less proportion to each other in different cases—the constitutional and the local. In the latter class there may be local symptoms: indeed, in gout and rheumatism they constitute a very prominent part of the disease, but their connection with the particular place where they are manifested is not so close as in the former class, the symptoms depend on functional rather than actual organic changes of the part, and, as a general rule, are much less amenable to local treatment. There are most important exceptions to be taken to this statement, of which it will be sufficient to mention the organic affections of the bowels in fever, and of the heart in acute rheumatism: but as fever and rheumatism respectively may exist, and of great severity, without these lesions, they are considered only as accidents, as complications of a disease which can go on without them. The manifestation of organic disease in a part frequently attacked, as in

the knuckles after frequent gout, scarcely constitutes an exception, being merely the result of the general tendency of repeated functional disease to induce at last organic, albeit specific changes.

As one or other complication may be absent in different cases —speaking now in relation to the present subject of investigation, continued fever—we come naturally to think of fever itself as something possibly unaccompanied by any or all of them, as a something acting throughout the body, not requiring for its continuance that that action should always produce organic changes, even though it be strong enough to destroy life, itself merely an influence, however powerful, a tendency to disease, or by analogy of its effects, a morbid poison. Chemistry, to which men in most ages have looked for a solution of the phenomena of fever, has supplied many a fanciful explanation on the hypothesis of a fermentation of the blood or other causes, which explanations it will be time enough to adopt in detail, when chemistry in its own way has presented us with an antidote to this subtle agent, concerning which we know nothing, and of which nothing but the convenience of the expression justifies us in habitually assuming the existence. And, so long as we consider the term morbid poison only as a convenient mode of expression, it may safely be employed; but it is very unsafe to argue from any general laws of morbid poisons as to any other disease than the one from which they were drawn, or to consider these laws as more than a very limited statement of facts, of what has been, which must be observed many times before we have any grounds for inferring what will be.

This unseen influence working in the body presents very striking analogies to the modes of operation of different poisons. Its modes of action are various; sometimes the bodily functions are at once overwhelmed, just as from some severe mechanical injury; at others the body slowly submits to its influence,

but under it the patient lies for many days between life and death—no organ affected, nothing tangible, to the removal of which the physician's efforts may be directed, simply a tendency to death. And when death does come, as too often happens, there is nothing that the eye can detect to explain this disturbance of all the functions of the body; the blood is found dark and mostly fluid, and this is all that is left for either morbid anatomy or chemistry to infer from as to the cause of death. Or sometimes the poison acts in another way: the disease goes steadily on, unmarked by any incident besides those which the nature of the epidemic may have led us to expect, when suddenly the patient, who, for some days past, has been gradually getting weaker, as is usual in the progress of any exhausting disease, sinks in the course of half an hour into a state of hopeless collapse from which no powers of medicine can arouse him. There will be occasion hereafter to return to this subject; at present it need only be remarked that such a condition, much as it may depend in the first place on something specific in the nature of the fever, is yet more immediately referable in most cases to simple exhaustion, for it is met with more rarely in proportion as a stimulant rather than a lowering system of practice is prescribed, and as the nurses are more assiduous in their attentions, both by day and night, to carry out this prescription.

The first form, that, namely, of sudden complete prostration, is well illustrated in the following case:—

CASE I.—*Fever; sudden complete prostration; death; dissection.*

Richard Bentley, aged 19, admitted April 30, 1840. Matthew back ward. A strong, well-made lad; skin dusky; lips, ears, and extremities, cold and livid; eyes suffused; pulse imperceptible at the wrists and temples; bowels profusely relaxed, evacuations passed unconsciously, dark, fluid, and highly offensive, abdomen tender on pressure; tongue moist at the edges,

the tip and centre quite dry. He lies on his back with his knees retracted, quite insensible to external objects.

History.—He is apprentice to a musical instrument-maker; was seized suddenly with headache, not preceded by rigors, two days ago: that night he was restless. When seen by his mother, who gives this account, on the next evening, he was just sensible, but otherwise was in the some condition as at present. No more exact account of the commencement of his illness can be obtained.

Ordered to take a drachm of brandy, or an ounce of wine, every quarter of an hour, according as he can be got to swallow either of them.

This treatment was commenced at noon, and continued for twenty-four hours. Under its influence his pulse became perceptible at the wrist about 3 P.M., beating 160 in the minute, and gradually diminishing in frequency to 120. Between each repetition of the stimulus, during the last five minutes of the quarter, it was observed that the pulse faltered, and the extremities became cooler, requiring the constant application of hot bottles to his feet.

4th day.—The pulse remains steady. Tongue uniformly moist and red. Surface of the body slightly jaundiced. He continues in the same insensible state.

Ordered to take a small quantity of broth alternately with the brandy at longer intervals.

5th day.—In the evening he was very excitable, and could hardly be got to take his food; he was apparently uneasy from the use of stimulants, and on their amount being reduced he slept well; the pulse now remains steady, and all uneasiness about the throat has subsided. Bowels not open. There is a little crepitation about the base of both lungs in front.

In the evening he became so restless as to require to be fastened; he was delirious; his voice hoarse, and with difficulty raised above a whisper. After 8 P.M. he had some quiet sleep

till 2 A.M., when he awoke and died quietly but suddenly at 3 A.M.

The body was examined 11 *hours after death.*—The skin was mottled. The brain was healthy, perhaps rather dry. The lower part of both lungs, especially of the left, was congested with blood. The pericardium and peritoneum were both unusually dry; the intestines healthy, except that there were a few ecchymoses in the lower part of the ileum. All the other organs were healthy.

Thus, in the course of little more than five days, was a lad, whose previous history gave no reason to consider him otherwise than as strong and healthy, destroyed by a disease which neither by its symptoms during life, nor by the traces of its action discoverable after death, gave any grounds for a nearer conjecture as to its nature than can be expressed by the general term of fever. In truth, he died before the symptoms had fully developed themselves, and it must remain uncertain, whether, had he continued to live, the disease would have finally appeared in the form of typhus, or of scarlatina, or of some other disease. The general impression at the time, which it is the object of the above narrative as far as possible to recal, was that the disease was the ordinary continued fever of the severe type then prevalent; though a redness of the elbows and a soreness (without, however, any visible ulceration) of the throat observed on the fourth day, rendered it doubtful whether the disease might not be scarlatina, the more so as it is especially in this disease that such overwhelming prostration is liable to occur.

But leaving this point,—for it was of little matter what the name of the disease might be, when the sole indications were to ward off death, and those clear and paramount,—the most instructive part of the case was the observation of the effects of treatment in restoring the powers of life;—how the heart recovered itself, then the brain;—how the patient, from an almost lifeless,

livid mass, became capable of feeling and of expressing his sensations;—how those sensations became a further guide to treatment which had hitherto had for its basis merely the action of the heart, and for its object merely to sustain that action. And when under this treatment the imminent danger had gone by, and the case seemed to be resolving itself into one of severe continued fever, a question of more frequent application suggests itself, as to the cause of death which occurred so unexpectedly. Whether it was the commencing pneumonia, which in his condition was sufficient to destroy life, or whether it was simple exhaustion arising from want of food during the six hours that he had slept, it is impossible to say: it is enough here to observe, what can never be too strongly urged on the attention of the student, that in the treatment of fever the necessity for the exhibition of stimulants, even to the amount given in the above case, should never exclude the suspicion of latent inflammation; nor, on the other hand, does the existence of inflammation of any organ, even of the lungs, or even though it may have at the same time to be treated by depletion, as would probably have been the case here had the patient lived through the night, at all exclude the necessity for the use of nutriment or stimulants which the general symptoms may indicate.

Cases like the last are not very common; there is the more need to dwell on them, for they are very instructive in the practical application of remedies, apart from the exceeding interest which they possess in the study of fever, as illustrating the effects of its so-called poison on the system at large. They speak not of some extraordinary form of disease, which, had it been half as extraordinary, would have been equally incurable, but of the higher degrees of that on which even in its lower degrees often hang the issues of life and death in fever. They speak of something we may never see again in all its severity, but shew the danger of a condition to which a far less severe case may be tending: rare themselves, the information derived from them is of very common application.

The subject is too important to pass over without throwing all the light upon it which occasional observations supply.

1. A young woman was brought to the Hospital during the present winter by an acquaintance, who left her, only stating that she had been ill a week. She was senseless, flushed, the skin pungently hot, the extremities cool; she had a dry tongue, and a thready pulse of 144. She was immediately put upon the use of wine and nutritious food, to be given at short intervals, but it was three days before she recovered so far as to supply any more indications than those which were drawn from the constant examination of her general symptoms. Her subsequent recovery was rapid, not delayed by any local symptom.

2. Ann Thurtell, aged 19, was in the Hospital in July 1847, suffering from subacute rheumatism, with old disease of the heart, when she was suddenly so completely prostrated by an attack of scarlatina, that all that was thought of for a day or two was to uphold her by wine and quinine. As she rallied under the use of stimulants, the rash of scarlatina made its appearance on the hands and legs, of a most intense redness, not having appeared at all on the face, where it was most carefully watched for. Ulceration of the tonsils, however, advanced rapidly during the state of collapse. Very slight desquamation followed, as she steadily but slowly recovered. It would seem that the extreme prostration did not suspend the regular progress of the disease, but only suppressed, during part of it, one of the symptoms. It is not a matter of surprise that the mixed process of sloughing and ulceration of the tonsils continued during the collapse.

3. John Mathew, aged 20, single, healthy, living with his sister, at that time ill of small-pox, was seized suddenly with a rigor on the morning of June 17, 1844. He tried to work, but soon came home again, rubbing his hands on his loins for pain, and saying his back would break, and vomiting. The next morning he was in a state of furious delirium, his pain was much greater, and the surface of the body quite dusky.

He was brought to the Hospital on June 20, and immediately placed in a warm bath, which threw him into a violent perspiration. When visited, his face was flushed and turgid, lips livid, crusted with sordes, eyes prominent and injected, respirations 44, hurried and difficult, alæ nasi dilating. Tongue dry, with a thick brown fur; pulse 120, with some power. He was able to complain of violent pain in the head and loins, and urgent dyspnœa, but *auscultation* detected no morbid sounds in the lungs.

He was bled to twelve ounces. The pulse became more frequent, and gradually failed, his dyspnœa increased, and he died, to all appearance suffocated, in the course of the afternoon.

The body was examined 24 hours after death.—Putrefaction had already commenced; there were green patches on the lower part of the abdomen, and the cuticle could be peeled off the arms; the surface was as dusky as it had been during life. Except slight old emphysema of the lungs, there was no discoverable change in any organ. The blood in the heart was imperfectly coagulated; that which had been drawn during life presented a grey jelly lying on the top of the colouring matter, which remained generally loose, only two or three little coagula being visible in it. The grey gelatinous mass gave out clear serum on pressure, leaving shreddy fibrin.

It does not appear that a different explanation can be offered of this case than death by the morbid poison of small-pox, before the external signs of the disease had manifested themselves. It would need very strong contra-indications from the other symptoms to assure one in any other case with as strongly marked signs of bronchial obstruction as the above, that bleeding from the arm was inadvisable; but, though it cannot be said that venesection certainly hastened the fatal termination of this case, it wholly failed in removing the symptoms against which it was directed, namely, the dyspnœa and lividity. The obstruction to respira-

tion lay in the chemical rather than in the mechanical part of the process,—not in the lungs, but in the blood.

Actual demonstration, however, of the truth of such a notion is unattainable at present, and as any explanation of the mode of action of the morbid poison in the suppression of the external signs of a disease must be purely hypothetical, it will come with better grace from the humoral pathologists of an earlier date than from those whom the present stricter application of chemical phraseology would compel to qualify the expressive though fanciful language of Sydenham. "Now if any one were to ask me how it is that even in the most malignant diseases there are often so few symptoms of fever to be seen, I would answer the inquirer, that, in the first place, in that foremost and chiefest instance of malignity, the plague itself, there is very good evidence that the morbific particles are so exceedingly subtle and penetrating, especially at the commencement of an epidemic, that they pervade the blood like a breath of air, and having thus destroyed its vital spirits suddenly as by a stroke, they do not make it boil as usual, and hence the patient dies without fever. But in that lesser degree of malignity which is found in other epidemics, the symptoms of fever are rendered thus obscure in some cases by the disturbance excited in the blood and the humours by the discordant particles contained within them; whence it is, that Nature, overwhelmed as it were, has no power to put forth the more regular symptoms which make up the disease; but almost all the phenomena are anomalous, because the means by which she acts are altogether disarranged or destroyed."*

Those who have had experience of these cases say, that when the present danger is past, the return to health is singularly rapid, as if the force of the disease had spent itself on the system at large, rather than on particular parts, in producing

* Syd. Obs. Med. V. v. § 15, 16.

changes to be subsequently repaired. Dr. Williams* has concisely expressed this fact in the form of a law, "that when a morbid poison acts with its greatest intensity, and produces its severest forms of disease, fewer traces of organic alteration of structure will be found than when the disorder has been of a milder character;" but it cannot be asserted unconditionally that the intensity of the general symptoms in continued fever bears always an exact relation to the amount of the local changes; for sometimes, and this would seem from common experience to be the general rule, no local changes are produced, the poison has destroyed life without leaving a wound, at others the local seems quite as severe as the constitutional affection: again, sometimes, with the mildest general symptoms the local changes have been so severe as to cause death.

The second or more gradually induced form under which the action of the morbid poison of fever may appear is very frequently observed. The subjects of it in hospital practice are individuals of two large classes,—the habitually intemperate, whose bodies are stinted that they may have means to keep their nervous system in a constant state of excitement by intoxicating spirits, and the habitually wretched, who toil for the support of their families in a constant state of mental anxiety and bodily distress. It is this form, too, which fever not uncommonly takes among the richer classes, when it attacks individuals whose minds suffer from the continued though more legitimate strain of intellectual exertion, to the graphic description of which form, by Dr. Currie,† little could be added. In all these the stress of the fever seems to fall on the nervous system generally, without attaching itself to any particular organ, and when death ensues it is through the failure,

* On Morbid Poisons, Vol. i. p. 12.

† Med. Reports, Vol. i. p. 46.

as it were, of that which should direct the actions of life; or, if life is saved, it is only by the timely exhibition of stimulants directed simply to sustain it while this mysterious tendency to death passes by. Perhaps it is an over-refinement to consider this form apart from affection of the brain in fever, but without mooting this question, which anatomy indeed could not settle, there is one good reason for keeping the two separate, namely, the difference of treatment required. In affection of the brain in fever, or on the first sudden action of the morbid poison, there may be opportunity for doing something, and all idea of active treatment must not be banished without a careful study of the individual case; but here the treatment much more closely resembles that required in delirium tremens: if the patients are to be saved at all, (and the mortality is very large), their only chance of safety lies in the judicious employment of wine and opium.

CASE II.—*Fever, with spotted rash and petechiæ; great prostration of strength; recovery.*

John Sloper, aged 38, admitted May 4, 1843. John back ward. A baker, of intemperate habits, worn and cachectic, was admitted with rheumatic inflammation of the different joints, affecting especially those of the lower extremities. During his stay in the hospital, the testis, and subsequently the iris, became affected; but all this subsided under the use of colchicum, which he was taking till June 18, when it was suspended, on account of diarrhœa which set in on that day.

On June 19 it is noted, that for the last three days there has been a slight increase of pain in his ankles,—now he has nausea, and occasional vomiting; tongue furred and white; pulse 108, soft; the bowels have been purged, but diarrhœa has ceased since the colchicum has been omitted. His chief complaint is of thirst, but his appearance is one of great distress.

Ordered to take an effervescing draught occasionally, and four ounces of wine daily.

2d day.—He was very restless and delirious during the night. Expression vacant; eyes suffused; lips dry and covered with sordes; tongue coated with two lateral streaks of yellow fur; pulse 128, thrilling; bowels open; abdomen tympanitic; skin hot, with a mottled rash over the chest and abdomen. His chief complaint is still of thirst.

Ordered two grains and a half of mercury with chalk twice a day; a saline draught, with ten minims of compound spirits of sulphuric ether, every six hours; to continue the wine, and to take some beef tea.

3d day.—Restless and delirious at night. He lies on his back. Face and eyes more suffused and dusky; skin hot and dry, still mottled; extremities cold; tongue coated with a clammy white fur; lips and teeth covered with sordes; one scanty, solid, light-coloured evacuation; abdomen full; pulse 136, small and soft.

Ordered to increase the daily amount of stimulants.

5th day.—He slept quietly and without delirium during the night, but is rather incoherent this morning. Face flushed, dusky, and anxious; tongue dry and furred, with black patches, protruded with difficulty; pulse 132, very small and soft. He lies on his back, with slight subsultus tendinum.

Ordered to increase the quantity of wine to ten ounces daily, and to continue.

6th day.—Restless and delirious. He lies on his side, still with subsultus tendinum; breathing hurriedly, and occasionally sighing; very deaf; face flushed; teeth and tongue covered with sordes, which, however, is scaling off the latter; pulse 136, small and soft. The rash is more of a petechial character: one scanty liquid evacuation has passed from the bowels.

Ordered to continue.

7th day.—Restless, getting in and out of bed, but not delirious. He lies on his back, rolling his head from side to side, contorting his features. The muscular tremors continue. Skin hot and dry; the eruption in distinct spots, of a bright red

colour; lips, teeth, and tongue, covered with dry sordes; pulse 124, softer; two dark, semi-fluid, very offensive evacuations from the bowels.

Ordered to continue.

8th day.—Noisy and restless during the night. He now lies on his side; skin cooler, but dry, with abundant petechiæ on the extremities; tongue cleaner, and slightly moist, but protruded with difficulty. Two pitchy, horribly offensive evacuations; pulse 120, small and soft. The muscular tremors continue.

9th day.—He slept quietly; he is drowsy, deaf, and very dull; tongue clean and moist; skin cool; the eruption generally more distinct, that on the extremities in the form of purpurous spots; two evacuations from the bowels of the same character as yesterday; pulse 112, very soft.

Ordered to leave off the mercury with chalk; to take one grain of compound ipecacuanha powder to-night; to continue the rest as before.

10th day.—Good sleep. He lies on his right side, taking little notice of any thing; answers coherently when roused, but immediately relapses into a state of drowsiness. There is no flushing or heat of skin; tongue dry and glazy at the tip; pulse 96, very small and soft; bowels not open; slight tenderness in the right iliac fossa. There is some return of appetite.

Ordered to continue the wine and beef tea.

On the 11th day the chief particulars demanding attention were his own sense of extreme debility, and the occurrence of a copious discharge of urine. On the 12th, after a quiet night, he was quite collected; pulse 84, fuller and soft; two fluid, pitchy, offensive evacuations; tongue clean, and capable of being protruded further.

The various organs gradually resumed their healthy functions:—On the 13th day, perspiration was noticed on the arms; then his pulse fell to 66 as it increased in power; then the eva-

cuations resumed their healthy appearance; but he was still very weak, and scarcely able to stand, when, on the 17th day he was, at his own request, removed from the Hospital.

The features of this case are few, but strongly marked: summarily, it represents a state of extreme debility coming on in an intemperate worn-out man, and passing off again in about two days. Of the nature of the disease there can be no doubt; it was identical with the fever prevalent during that year, presenting no greater differences than were explicable by the peculiarities of the individual. Its cause may be simply assumed to have been by contagion from other cases at that time in the ward—an explanation which most would readily admit, but which no arguments that could here be brought forward would demonstrate more fully, to those who may be disposed to deny the fact, than what are already before the public.

This spreading of fever is more frequently noticed in one year than another. During the period to which Dr. West's observations, drawn from the same field as my own, refer, 1837-38, this was very often witnessed (Edinburgh Med. Surg. Journal, Vol. L. p. 144), and the same was noticed with generally less frequency for the next three or four years, rising again into importance in 1843, and again, after a short interval, with the severe epidemic in 1846. During the spring and summer months of 1847, when the Hospital was crowded with Irish fever patients, one ward with twenty beds having contained on more than one occasion ten cases of fever in all stages, scarcely one instance of the disease extending to other patients or nurses occurred; but, in the autumn and winter months, though the cases of fever in the hospital were less numerous, many instances of this kind were noticed.

It was observed curiously enough in 1845, that the only two cases which presented the spotted rash during that year, were

a daughter, and her mother, who appears to have lived separate from her, but to have come backwards and forwards to attend her in the Hospital. Though hereditary peculiarities may have had much to do with the resemblance here, for the same was noticed in a mother and her two children in 1847, yet other cases have occurred, from time to time, where neither any hereditary resemblance nor identity of local influence can be traced, to explain how the same form of disease is reproduced. But these are the exceptions: the form of fever has seemed to depend in the highest degree on the influence of season and place, especially as regards the relative frequency of the more serious local complications; and the relative intensity of these, with the varieties of the eruption, have appeared to depend in an equally great degree on the peculiarities of the individual. Of the direct transmission of more than the simple fever,—the essence of the fever, so to say, from one to another, apart from all sources of fallacy above noticed,—my own observation of the difference of the phenomena, exactly noted in a father, mother, and child, a mother and two sons, and a brother and sister, all occurring in 1846, leads me to doubt.

It sometimes happens that all the members of a family in the courts of Cow Cross or Saffron Hill, being attacked with fever at the same time, are carried away from their home, and distributed among the wards of the Fever Hospital and St. Bartholomew's. It is of great interest to watch these poor creatures, and notice the differences in the form of disease which they may present; but it is of much more importance to observe with how little risk they may be placed in the midst of patients suffering from other forms of disease, in the majority of cases. It is pretty clear that the risk of contagion has certain limits, varying at different times; and when these limits are passed, as constantly happens in fever hospitals, the disease is liable to spread. Probably if the patients of a fever hospital could be kept as widely separated as are the fever patients in a general hospital,

the disease would be as little liable to spread amongst them; and, if the attendants had absolutely as few cases of fever to look after, they would enjoy an equal immunity from its contagion with those connected with a general hospital. Under ordinary circumstances, there would appear, therefore, to be no particular advantage in fever hospitals or wards arranged on such a scale as to prevent all chance of contagion, since it would be better to fill up the intervals which must be preserved between fever patients, if it is safe so to do, with patients suffering from other diseases, than to let them remain empty. But on a sudden outbreak of fever, especially in a sea-port liable to a large influx of strangers, their utility with all their danger is very great. Fever may be stopped at once in a locality by transferring all the sick to the wards of a hospital; for, much as it may spread within the walls, it never passes them, as it does among the habitations of the poor, and the existence of an institution exclusively devoted to the reception of this class of cases, prevents the wards of a general hospital from being, on such an outbreak, converted spontaneously, by contagion, into fever wards.

Besides the sudden increase, under such circumstances, of the numbers of the patients suffering from fever, there is observed, in all epidemics, from the plague of Athens downwards, a tendency of all forms of disease to assume, as far as may be, the epidemic type. Much, probably, of this is explicable on the supposition of the existence of some atmospheric condition affecting all who cannot resist it after the same way; but, however this may be, as far as general impressions, in the absence of particular notes, will justify the assertion, simultaneous with the occurrence of severe cases of fever in the medical wards, phlebitis and troublesome sores are more commonly met with in the surgical wards of this hospital, and erysipelas of the head and face in both. Erysipelas is spoken of by French authors as a not infrequent and most dangerous adjunct to fever. In the

wards of St. Bartholomew's Hospital, the coincidence of the two diseases in the same person is very rare ;* and, considering the proximity into which patients suffering from these diseases are often brought, and the contagious nature of them both, surprisingly so. As far as the extreme rarity of the occurrence will permit any inference to be drawn, it would seem that the reverse order is more commonly observed; fever follows erysipelas.

Fever transmitted from one person to another, as when caught in the hospital, by students, nurses, or patients, is generally very severe; and this admits of an easy explanation: for, when the usually recognized external causes of a disease are absent, it argues a strong innate predisposition or impaired powers of resistance to disease to take it from another; and the latter condition, with which the spread of fever in this way is more commonly to be connected, is a very unfavourable prognostic.

The presence of many cases of fever in a ward at the same time is always sufficient to attract attention to any unusual symptoms which may appear in the other patients. Occasionally such symptoms run on as in the last case, and fever ensues, differing in no respect from the ordinary type. More commonly the alarm is found to have been false, for hospital patients are all staunch contagionists, and proportionately timid. But the most curious thing is, that sometimes, after having lasted three or four days, the symptoms subside, (not merely headache and uneasiness, but diarrhœa and abdominal tenderness, with mottled rash,) and the patient returns to his former condition. As for those cases where a rash has been seen, it is most likely that the patient has been ill longer than he is conscious of, for the rash of continued fever very rarely appears before the fifth or

* Not more than once in one hundred and fifty of the generally severest cases, occurring chiefly in 1843 and the four following years. Dr. Roupell has met with it much more frequently. (On Typhus, p. 87).

sixth day (which fact renders it probable that the dates in the last case are generally behind hand,) but where there are no such dates to compute by, are we to say that we have been mistaken, either in calling these symptoms fever, or in overlooking their previous existence? Or shall we say that the fever has been cut short? And this brings us to the consideration of the duration of fever.

To say that fever cannot be cut short, would be as little justified by the state of our knowledge of fever, as is the assertion of the contrary. The initiatory symptoms of fever have nothing in them peculiar to that disease alone; and, as the duration is one important element in the definition of continued fever, success in the attempt to remove these symptoms is rather an argument that the disease was not of this nature. Indeed, it is hard to see how the thing could be proved either way, even by dissection; for, if the glands of the intestines were found altered, the disease could not be said to be cured: if healthy, where is the proof—this occasional one the only one that dissection can give—that the disease was fever at all? Obviously, it is not worth while to risk anything in the further progress of the disease by rash attempts to cut it short. If the symptoms point to venesection, or the use of an emetic, or of the cold affusion, the indications should be acted on; but treatment pursued empirically should at least be harmless, where there is any probability of its failing in its immediate object.

A certain period might seem to be necessary for the poison to work itself (to use the expression) out of the body; but the explanation assumed in this expression can scarcely be correct; for, after the subsidence of all the symptoms, it is notable how exposure to cold or incautious use of food will bring them all back again; and this most especially in the forms of fever which are unaccompanied by any structural changes, where the relapse must consequently be part of the fever, rather than sympathy with some local irritation from such lesions. The fevers of the sum-

mer of 1847, and especially those marked by an early miliary eruption, aptly illustrate this; they were particularly liable to relapse, and during the same period, judging from the dissections of the few cases which terminated fatally, particularly free from organic changes.

Of the average length of this period, my notes are sufficiently numerous, during each of five successive years, to enable me to speak with tolerable certainty. Nothing can be more difficult than to say, in any one case, at exactly what time the patient began to recover; and the inaccuracy attaching to each observation is only concealed, not removed, when we deal with numbers, leaving the particular descriptions. The results must be taken, therefore, as approximations only to the periods of the duration of fever, in the successful and fatal cases, dating to the beginning of the amendment and the death in each respectively:—

	1843.	1844.	1845.	1846.	1847.
Day of Recovery.	15	14.6	11.6	18	18.9
Day of Death.	14	23.5	19.5	23.4	33.3

The upper line takes no notice of relapses: the basis of the calculation in the lower line is not large enough to allow of the separate consideration of the cases, as they proved fatal at an earlier or later period. Yet this distinction is very important and appreciable; for, inferring from the cases of 1846 and 1847, it appears that death from primary fever takes place about the sixteenth day; from its secondary effects, not till the thirty-eighth or fortieth day.

The manner of death, as might be expected, bears a very close relation to the particular complication predominant during each period into which the whole duration of fever is frequently sub-

divided. Of death following upon the first accession of the general symptoms, during the first weekly period, I have not the means of speaking generally. Coma is the condition into which most of the cases which terminate fatally before the end of the second week pass; this corresponding to the usually early development of the cerebral symptoms. The pulmonary complications are generally said to be the next to prove fatal, by apnœa, and then follow, from affection of the bowels or other causes, those who sink under sheer exhaustion: but this statement is not strictly true of the cases which are here detailed: death by exhaustion appears among the deaths by coma before the end of the second week, and death from affection of the lungs is scattered up and down throughout the list of deaths by asthenia, the frequent recurrence of which word in the table indicates alone sufficiently the character of the epidemic. All this, it should be observed, is of general, not of particular application.

There are other matters of great importance connected with this subject, which it would be beside the purpose of the present work to enter upon, for my opportunities of observing them have been very limited. Such are the inquiries into the causes of fever, and how long, after these causes have induced the disease, it may remain latent in the system. It may be suggested that the disease in the last case was not caught in the hospital, but remained latent during the continuance of the rheumatic affection for the first six weeks that the patient was under observation.* And longer periods of incubation than this are quoted.† The origin by contagion has been assumed as the more probable, but it is right to point to facts of frequent occur-

* The exact period of incubation, assuming the possibility of origin by contagion as a point to date from, in the case least open to doubt with which I am acquainted, was eleven days.

† Williams, op. cit. p. 40.

rence in hospital practice, lending a colour to the doctrine of the long incubation of diseases.

Patients are sometimes admitted, suffering from what, after much puzzling, is set down as anomalous rheumatic pains. Treatment has little effect upon their ailment, as might be expected on such vague indications; yet they are obviously ill. Rest, and warmth, and time, are looked to for the accomplishment of the cure, and they do not fail us; for, in due time, fever or one of the exanthemata often makes its appearance, and then the patient with his fever, severe as it generally is, loses all his ailments. Probably there are few who could not from their own experience recall several such cases, where an attack of this kind has swept away all sorts of ailments, and preceded an uninterrupted enjoyment of health, as, on the other hand, it is sometimes its first breaking up. It is a very partial view which always looks on acute disease as a sudden interruption of good health: doubtless it often is so,—the exanthemata themselves supply the best example of this occurrence,—but is it that acute disease always engrafts itself on the cause of these anomalous symptoms, or that in it the acute disease already often exists? The delicacy of the presentiment of coming events possessed by the system at large needs only a little observation to be fully appreciated. There is no denying that an attack of fever may be a very effectual though sometimes severe remedy for many intractable ailments, as for what there was undoubtedly of rheumatism in the last case, and that it really removes them and does not complete them, as has been suggested: but the occasional existence of this delicate presentiment of coming disease, must not be set aside, because hospital patients will not confess to the lassitude, the uneasy nights, the capricious appetite, which mark the period of incubation of fever, when it is repeatedly found that tumours, emphysema, valvular disease of the heart, and pleural effusion, have passed unnoticed by them.

Such theoretical notions need not, however, embarrass practice, for it would seem that a disease cannot be treated during

its period of incubation, did we even know what the disease was going to be; they should urge us to inquire more closely into the reason why our remedies do not succeed in an individual case, to be more exact in their application, and to feel at times our own uncertainty. It is occasionally necessary to suspend all treatment, in order to a clear understanding of a case, and to withhold present relief from symptoms, in order to their ultimate cure, but only on this consideration; for the study of disease must be subservient to the consideration that it is human life with which we have to do, and when we cannot see our way clearly we must carefully feel it, that the patient may live or be at ease, for our knowledge must not be bought by his pain or danger. The rule for our guidance in the treatment of fever is simple; to do all that may be done to control painful or dangerous symptoms, keeping constantly in view that the patient may have to pass through a fortnight or more of a most exhausting disease, with all those specific local complications, the symptoms and treatment of which form so large and important a part of the subject of fever.

CHAPTER III.

AFFECTION OF THE BRAIN IN FEVER.—GENERAL CONSIDERATIONS.—EXAMPLES OF THE DIFFERENT FORMS AND SYMPTOMS.—THEIR APPROPRIATE TREATMENT.

In all pathological researches there are two very prominent sources of fallacy: first, that symptoms may exist independent of morbid changes; and secondly, that morbid changes may be found where no symptoms have been observed. In ordinary affections of the nervous system, it is with the first source that we are chiefly concerned, for, saving the occurrence of large serous effusion into the lateral ventricles—a fact which must never be taken alone, without testing, by the form of the convolutions, the conditions under which the fluid has been effused—comparatively few brains are found organically diseased where there have been no symptoms during life referable to such lesions. It is true that there is no series of symptoms usually referred to the nervous system, coma, convulsions, paralysis of different parts of the body however well defined, spasm or delirium, after death, with which the brain and spinal cord have not been found in some cases, as far as our present means of examination avail us, perfectly healthy; still, in ordinary disease, such cases are the exceptions, however numerous, and interfere but little with treatment: the symptoms of apoplexy, for instance, depend too often on extravasation of blood for us to hesitate for a moment in adopting the seemingly appropriate treatment for each case, because we may have occasionally found the brain to all appearance healthy after death with such symptoms, or because we have no certain rules by which to distinguish during life extravasation from softening.

In continued fever, however, the case is quite different; dissection rarely shews any organic lesion of the brain after death with cerebral symptoms in this disease, and the treatment is generally directed not to subdue inflammation, but to reduce the present symptoms and to prevent coma.

Recognising the disease in any particular case as fever, the outline of the treatment to be followed is very clear, whatever may be the practical difficulties in carrying out the details; but as cerebral symptoms have nothing intrinsically characteristic by which we may at once recognise their origin, the history and the other symptoms must say whether the disease be fever or ordinary disease of the brain, and from them the general direction of the treatment must be taken. In entering on the treatment of this complication there are a few general rules to be kept in mind, namely, that, whatever means we employ, we have nothing to do with the immediate cause of the symptoms, as knowing nothing about it; when the symptoms have been reduced within what are judged to be safe limits, there is an end of them, for morbid anatomy tells us nothing of any local cause for them, which we might be anxious to remove as thoroughly as a malignant tumor, lest that which remains behind light up the symptoms afresh. Moreover, probably no amount of treatment would suffice completely to remove the symptoms of any particular organ, so long as all the rest of the body were suffering from the common cause.

CASE III.—*Fever, with mottled rash; death by coma; dissection.*

William Salmon, aged 41, admitted May 21, 1846. John front ward. A thick-set man; had been in the Hospital for the previous two months with anasarca and ascites, and their accompaniments, cough and dyspnœa, the urine not being albuminous. All these had disappeared. On May 15, he had loss of appetite, with thirst and some headache, which was relieved by a dose of purgative medicine, and he left the Hospital on May 18,

taking with him some purgative medicine, which he had asked for on account of the relief which he had before found from its use. He had a little headache at this time, but not enough to constitute a source of complaint in a man who was anxious to return to his work.

He came back, May 21, with a pale and anxious face; respiration hurried, 40; skin warm and moist, slightly mottled; tongue moist, with a thin brown fur on the dorsum, the tip red and clean; bowels much relaxed from the medicine. He complained of pain in the head, thirst, and debility. It appeared that the headache had continued after his discharge, but he slept well that night. Next day, having taken some of the medicine, he was violently purged; that night he was restless, the next delirious, and now he is so weak that he can hardly walk.

Ordered, wine, eight ounces; beef, for tea, two pounds; a saline draught, with camphor mixture,* and half a drachm of compound spirits of ammonia every four hours, and five grains of compound mercury and chalk pill thrice a day.

* 1. Saline draught with Camphor mixture.

Liq. Amm. Acetatis, ʒij.
Mist. Camphoræ, ʒvj.
Aquæ destillatæ, ʒvj.

This draught is much used in the treatment of fever, or of any cases requiring constant watching. It is not so likely to purge as the more agreeable saline the tartrate of soda, and being ordered to be taken at short intervals insures constant attention on the part of the nurses, while, if it does no more actual good than to refresh, it is sure to do no harm to the patients.

2. Compound mercury and chalk pill.

Hyd. c. Cretâ.
Pulv. Ipec. co. aa. gr. ijss.
Sacchari Fœcis, q. s.

The form in which, in all fevers with affection of the bowels requiring its use, mercury is employed.

8th day.—Slept quietly and well; he is now drowsy; face slightly flushed; skin hot and perspiring, more distinctly mottled; pulse 128, soft; tongue with a dryish brown fur on the dorsum, the apex red; bowels four times open, abdomen tolerant; he has less thirst and headache; he vomited once this morning.

Ordered to leave off the pill; to continue the rest.

9th day.—Restless, but not delirious, during the night; he is now incoherent, and has muscular tremors; face vacant; skin warm and moist; tongue moist, slightly furred; respirations 36; pulse 120; one dark bilious evacuation, abdomen tender.

Ordered to continue; to have a linseed-meal poultice applied to the abdomen.

10th day.—He gradually awoke from the stupor in which he had lately lain, became watchful and excited, trying to get out of bed: at 3 A.M. he had an attack of convulsions, and since that time has been lying restlessly on his back, throwing his hands about; face pale, eyes dull, teeth and tongue crusted with sordes; pulse 120, small; skin cool and damp; all his evacuations passed under him; he is just conscious, but quite unable to speak. He died the same evening.

Body examined 15 hours after death.—The limbs were rigid; the posterior part of the body of an uniform deep purple tinge; a few spots of purpura existed on the lower extremities. There was a little clear fluid in the arachnoid sac, but except some old thickening of the superior longitudinal sinus the contents of the cranium were healthy. The pericardium contained four ounces of clear fluid in its cavity; there were small ordinary coagula in the heart; the valves were slightly thickened, but healthy. The right pleura was free; the left adherent about the apex, which contained several masses of putty-like substance, and much black pulmonary matter; the rest of the lungs was very œdematous, with bloody congestion behind; the bronchi were healthy. The mucous membrane of the

stomach was slightly injected; there were a few vascular patches in the duodenum and jejunum. The Peyer's glands in the ileum were hardly as noticeable as usual. The colon, examined in the first half, was perfectly healthy, as were also the mesenteric glands. The spleen was large, of a light purple colour, and trembling from its softness, when shaken.

As concerns the dropsical accumulations:—the capsule of the spleen was thick and white; the liver was chiefly made up of the right lobe, forming a large round lump, coated by a white membrane, about half a line thick, presenting numerous roundish depressions, as though worm-eaten, on the surface. Beneath, the serous covering of the liver was in its normal condition; within, the liver was pale and homogeneous. The gall bladder was small and contracted. The kidneys were small, soft, granular, the capsule adherent; the cortex shrunk, with opaque deposit; a few small cysts were scattered about the surface, and one larger cyst existed in the right kidney. The omentum was rolled up into a round cord lying between the stomach and colon, with a few strong bands passing to one or the other of these at intervals. A few long cords connected the spleen to the under surface of the diaphragm; the peritoneum of the lower part of the abdomen was healthy.

Opportunities occur more frequently of seeing the appearance of parts where ascites has not been relieved, than where it has. This fact claims for the morbid appearances a little more attention than would otherwise justify this lengthening the details of the case by their insertion. The limitation of the results of chronic peritonitis to the upper part of the abdomen, and the comparatively marked degree in which they were found about the liver, agree well with the idea that this organ was most concerned in the abdominal effusion. But though by rest and careful diet it had been brought about that the blood now flowed without interruption through the liver, yet the effect of the call which an attack of fever made on the powers of the patient, leaves us to infer that no cure had been

produced, merely that a symptom had been suppressed. In this light, namely, the influence of old disease, or its effects in determining the issue of recent acute disease, this case is of great interest.

Perhaps the previous existence of disease of important organs needs less to be dwelt on in connection with purely medical ailments, where all the functions of the body are at once submitted to investigation, than with accidental injuries, where death, rapidly following some comparatively slight injury, is found to be explained by old disease of the kidneys or liver, which during the healthy state of the rest of the body had not betrayed itself by any symptoms.

Of 115 cases in which the mode of aggression of fever has been noticed, occurring during the last few years, this was sudden in sixty-four, and gradual in fifty-one cases. The fifty-one cases number sixteen deaths, the sixty-four twelve, and this difference is even greater, taking the smaller number of facts which the practice of 1846 supplies. Yet this does not differ from what one would expect; the suddenness of the attack, though it may denote greater violence of the fever, and causes indeed sometimes fatal collapse, yet in most cases denotes, in the mode of succession of the early phenomena of disease, greater power of resistance. In this man, weakened by long confinement in the Hospital and an exhausting disease, the attack was so gradual that it passed unnoticed. A patient lately in the Hospital well illustrated this:—A weakly-looking man, working hard for his maintenance, had a very severe rigor; then came heat, great and long continued, followed by another rigor; but now the constitutional powers were exhausted, and there was no reaction. He was shortly after admitted with extensive pneumonia, and a pulse indicating the most extreme debility: his convalescence was lingering.

Why is Case III. classed as fever? From the symptoms, whose modifications were explained by the previous disease terminating in death, in the form and at the period how and

when such an event is to be expected in fever with affection of the brain, from the rash on the skin, and from the probability of infection from a patient in the same ward; the last an event which distinguished the fevers of the early from those of the latter part of the year. Dissection only tells, as it often does after death, that it could not be shown to be anything else. But on this question the facts of the following cases will better enable us to enter:—

CASE IV.—*Fever, with papular rash; nervous excitement; convalescence.*

Kezia Lockyer, aged 30, admitted Nov. 2nd, 1846. Mary front ward. A tall, strongly-made woman; face vacant; eyes fixed; skin cool and perspiring; tongue clean; pulse 120, soft; bowels at present confined; she lies tossing in bed, assuming all sorts of constrained postures, delirious, and quite unable to make any complaint.

History.—A servant; generally healthy. For about the last three weeks she has been out of health, sitting shivering over the fire for the first two weeks; but during the last week she has been laid up with diarrhœa, headache, and occasional noisy delirium. She is said to have had typhus fever eighteen months ago.

Ordered to have her hair cut, to apply eight leeches to the forehead, and to take five grains of mercury with chalk every eight hours.

23rd day.—Noisy at night; face pale, with a vacant expression; tongue dry and streaky; pulse 108, small, soft, sharp; bowels not open; skin warm and moist, with a papular rash on each flank, partially suppurating; she is quite sensible, and makes no complaint of pain.

Ordered to repeat the pill, and to take fifteen minims of tincture of opium to-night; to take two drachms of castor oil at once, and to have one pound of beef, for tea, daily.

24th day.—Her bowels were relaxed four times by the medi-

cine. This morning she had a rigor; now her face is flushed, the surface generally warm, but the feet cold; tongue dry; pulse 108, small and soft; slight muscular subsultus.

Ordered to continue: to take six ounces of wine daily.

25th day.—Good sleep; pulse 120, soft, small; tongue dry and streaky; one loose evacuation from the bowels, abdomen hard, and rather painful on pressure.

Ordered to continue the wine and beef-tea, and to take ten grains of compound mercury and chalk pill to-night.

26th day.—Some quiet sleep at intervals; tongue clean and moist; pulse 120, small and soft; skin moist; bowels open twice, once unconsciously; abdomen full and tender.

Ordered to take five grains of compound mercury and chalk pill every six hours, to apply a blister plaster to the abdomen, and to continue the wine and beef-tea.

27th day.—The blister rose well, and she slept quietly; tongue less trembling; pulse 120, with more power; bowels not open, abdomen still tense; more abundant papular eruption.

Ordered to take two drachms of castor oil, and to continue.

28th day.—Good sleep; three evacuations after the castor oil; abdomen less tense; skin warm and moist; tongue moist, with a thin fur; pulse 112, feeble; an abundant crop of pustules have appeared on the scalp.

Ordered to continue.

There is little else in the notes of the further progress of the case than a description of the gradual return of strength. Her weakness had been very great. She was not able to sit up till the beginning of December, and her first assuming the upright posture was followed by œdema of the feet. The urine, it may be remarked, was not albuminous.

There is not much to detain us in the above case, apart from the considerations connected with the following one. The few scattered papules on the abdomen are all besides that claim-

attention. Were there any form of rash as specifically connected with typhus as are the peculiar eruptions of variola, scarlatina, and so on, with these diseases respectively, there would only be to notice the rash in the present case, lest its occurrence should mislead. But as, in the cases already narrated or to be hereafter detailed, the rash has been characterized as mottled, spotted, papular, or not existing at all, it is worth while just to call attention to the form here displayed, more especially as Andral, in his description of a fever very analogous to that of the period now under consideration, speaks of a varioloid rash having appeared in three cases, apparently quite irrespective of any particular stage of the fever.*

Of the next case but imperfect notes have been preserved; but, such as they are, they acquire interest from their reference to the two others already narrated at greater length. The choice of illustrations is here more limited, owing to the comparative infrequency of cerebral complications during the above period.

CASE V.—*Fever, with faint mottled rash; tonic spasm; death by coma; dissection,*

Caroline Selby, aged 35, admitted Oct. 6th, 1846. Hope back ward. A middle-sized woman, of quiet habits, whose only thought was to do good to all about her. Had suffered for some weeks from pain in the head, subsequent to some mental anxiety. Three days ago, rather suddenly, she became light-headed; the next day she was very noisy and violent, but since then has lain quiet. Tongue dry and crusted; pulse 132, small, jerking; pupils dilated, but sight and hearing both remaining, although she will not answer when spoken to. A blister has been applied to the nape of the neck without effect.

Ordered six ounces of wine daily.

5th day.—No sleep till morning. Pulse 108, soft, small; tongue with a thick moist fur.

* Clinique Médicale, tome i. p. 630, 4me. édition.

6th day.—Noisy and restless at night. She is lying on her back, with her limbs all rigid; her eyes turned upwards, but the pupil, when it can be seen, quite sensible; tongue clean, dry; pulse 144, small, soft; bowels once open; urine very scanty.

11th day.—She has remained during this interval dull and drowsy by day, noisy at night. Pulse, varying in frequency from 108 to 144, always small and soft; skin warm and moist, and, since yesterday, faintly mottled; bowels not open without purgative medicine; her limbs are generally less rigid, but she clenches her teeth firmly against any attempt made to feed her; the urine has to be drawn off by the catheter.

12th day.—She lies on her back, with muscular subsultus, only just conscious. Tongue dry, black, and chapped, bowels not open; skin profusely perspiring; pulse not to be counted, scarcely perceptible. Such was her condition till death, on the afternoon of the thirteenth day.

The treatment was throughout stimulant, and from the seventh to the tenth day purgatives were employed, but in exactly what form no notes have been preserved to show.

Body examined twenty-two hours after death.—Neck relaxed, limbs rigid; blood all fluid. The brain was naturally firm; the arachnoid of the vertex was thickened, and about the pons Varolii there was some increased vascularity; the anterior horns of the lateral ventricles were dilated, containing about half an ounce each of clear fluid, and the lining of the body of the ventricles was granular in patches. The Peyer's glands of the ileum were very distinct, of a dull white colour, studded with black dots, and one of them close by the ileo-cæcal valve, where these appearances were most marked, presenting an old half-healed ulcer. The mesenteric glands were large and very dark, especially those corresponding to the lower part of the ileum. The other viscera of the abdomen and chest were carefully examined, without anything abnormal being found, except a small cyst hanging on the extremity of the left Fallopian tube.

Here are three cases of fever distinguished by cerebral symptoms. With regard to the second, it is open to doubt whether these symptoms were not referable merely to nervous excitement, consequent on the exhaustion of illness which had existed a fortnight—analogous, in fact, to delirium tremens: but in the other two, the symptoms appeared earlier, were more prominent, and did not yield to stimulant treatment, as in Case IV. In the first of these, the obvious source of contagion with the mottled rash, and in the third this mottled rash alone, were the positive grounds for the diagnosis during life. But the positive facts obtained by dissection after death were less conclusive than the negative ones; for even granting that, in the last case, the appearance of the Peyer's and the mesenteric glands was that specifically referable to typhus of the 13th day, and that, in Case III. the condition of the spleen is correctly referred to typhus of the 10th day, there are scarcely grounds for considering these as the link between the essence of the disease and its result—death. In Case III., certainly, the cerebral symptoms were independent of appreciable organic disease in the brain itself. In the last case the early occurrence of delirium prevented any accurate examination of those symptoms being made, but slightly increased vascularity of the pons Varolii is not the change one would expect to find twelve days after their appearance in a case of simple cerebral disease; apparently, judging from cases where similar lesions have been noticed, the cerebral symptoms were independent of the slight traces of organic lesion elsewhere discoverable.

But to class at once together, as instances of fever, all cases where severe symptoms, referable to the nervous system, have been observed, because dissection has not explained them, would be unjustifiable, however true it may be that fever is characterized by no definite organic lesions. The comparison of the symptoms of cotemporary cases is here the most trustworthy guide. The last case, though standing almost alone in the practice of 1846, is connected by gradations with many others in which

less severe cerebral symptoms have been observed, and though, judging from the general run of the cases, the differences might seem so striking as at once to exclude it from the denomination of fever, yet particular cases, and especially one or two occurring at the same period, would render it very difficult to do so. These are its claims to be presented as an illustration of a class of cases at the time comparatively rare. Of the symptom, tonic spasm, by which it was so distinctly marked, Louis says, (Fièvre Typhoïde, tome ii. p. 63, 2^{me} édition,) "In none of the cases which recovered was there any permanent contraction of the muscles of the neck or arms—a circumstance which would incline us to consider this symptom as almost absolutely fatal."

During the period when the majority of the cases included in the present collection occurred, the complications were many and various, and mostly so severe, that it was not a mere form to examine them all before selecting which were to be treated; for death might ensue from any of them, though one or other, as the pulmonary or the abdominal, required more attention at different seasons of the year respectively; and thus the observation of a single epidemic illustrated in a great measure the treatment that might be required in any epidemic. On the importance of this it is needless to dwell, for the treatment of fever where the pulmonary complication alone was to be feared, or the cerebral complication alone, would soon come to differ but little from the routine treatment of one particular class of those diseases, cerebral or pulmonary. But the difficulty and interest are far greater when the various indications, not of one only but of all the organs, have to be balanced, and the treatment of to-day in one place has to take into account what another part may require to-morrow, for the results of the injudicious treatment of one organ may appear in the course of the next fortnight tenfold magnified in another.

The cerebral complication during the above period, such as it was, is fairly illustrated by the three preceding cases, the insertion

of which seemed necessary to give a just impression of the fever generally. But so important a subject as affection of the brain in fever claims more attention than the cases just related may seem to deserve. The following cases have therefore been selected from the practice of 1843, when this particular complication was more frequent, and, as is common under such circumstances, more severe. It is perhaps necessary to remark, that the observations annexed to them are not such as a mere perusal of the cases, after a lapse of time, for publication, have suggested, but are generally in substance the same as were written at the end of the original notes.

CASE VI.—*Fever, with mottled rash; early delirium; death; dissection.*

William Folley, aged 23, admitted May 4th, 1842. John ward. Face wild and anxious; cheeks and eyes flushed; pupils contracted, but dilating when anything attracts his attention; muscles quivering; skin hot and dry, mottled; tongue brown and dry, furrowed in the centre; lips and teeth covered with sordes; pulse 108, very small; motions dark, fluid, and offensive; right hypochondrium painful on pressure; urine passed with difficulty, dark and turbid.

History.—He answers incoherently, and can give no account of himself, but his wife says that he is a bricklayer, healthy, exposed to great privations, and habitually intemperate. Seven days ago he was seized with shivering and pain in the head and limbs. The next morning he was hot and perspiring, and delirious. He has continued delirious ever since, and has had little or no sleep. He coughs from time to time.

Ordered mercury with chalk gr. ijss. twice a day; wine and beef tea; to have his head shaved, and cold lotion applied.

9th day.—Sleepless and delirious all night, requiring to be confined in bed. He lies on his back, with his hands clenched, his arms extended and raised from time to time to his head; breathing laboriously and groaning; all his evacuations being

passed involuntarily. Pulse 134, small, with some sharpness; skin generally hot and dry; tongue dry and brown; lips and teeth covered with sordes; his eyes are painful, nearly closed, the pupils contracted.

Ordered to be cupped to six ounces from the temples; to take three grains of chloride of mercury immediately; to have a turpentine enema this evening, and a mustard cataplasm to be applied to the legs.

At 7 o'clock P.M. he was quite insensible, but his expression was more natural, and his breathing less laboured. Pulse 120, very small. He sank gradually, and died in the course of the night.

The body was examined sixty-three hours after death.—It was well formed and in good condition; the depending parts were deeply stained by gravitation of the blood, the upper parts marked with petechiæ. The scalp was unusually firmly adherent to the cranium. The brain and its membranes were quite healthy; there was a little fluid in the meshes of the pia mater and the ventricles. The lungs were gorged, but otherwise healthy; there was a small quantity of fluid in either pleura. The spleen was dark and soft; the other organs were found perfectly healthy.

Little that could be remarked would give any additional interest to the above. It represented fever in its severest form, attacking a subject the most unfitted for it, and apparently marked from the first for its victim. Want and intemperance, though as yet no organic disease may have been induced by them, and the body be to all appearance healthy, are bad preparatives for such a disease. Almost from the first delirium set in,—not the delirium apparently of active organic disease, but, as interpreted by the perspiration, which must have been profuse to catch the notice of his wife, that of debility. On the ninth day appeared the symptoms of organic disease, which had not previously been of sufficient importance to require the depletion which his

other symptoms so strongly contra-indicated. The fatal result soon followed; the signs of approaching death quite precluding any attempt to investigate the effects of the treatment adopted, which may best be studied in connection with the following case, where the symptoms were spread over a longer period.

CASE VII.—*Fever, with papular rash; affection of the brain; symptoms relieved; death by exhaustion; dissection.*

Charles Barker, aged 29, admitted Sept. 28, 1843. John front ward. Face pale and anxious; eyes glassy; head hot and perspiring, feet cold; tongue moist and furred; pulse 74, small and soft; bowels freely open from medicine; urine free, high coloured; skin moist, with a papular rash about the chest and abdomen. Complains of loss of appetite, pain in the head much increased by cough, shooting pains in the epigastrium, and frequent rigors.

History.—A cork-cutter, temperate, healthy: six days ago was seized suddenly with rigor, headache, and oppression at the chest; he lost his appetite and sleep, and felt weak and anxious. He took some purgative medicine, but the symptoms have continued unabated to the present time. On *auscultation,* no morbid sounds are distinguishable, but the right side is rather duller on percussion than the left.

Ordered to take a saline draught with camphor mixture every six hours.

8th day.—No sleep from cough and headache; face flushed, profusely perspiring; eyes suffused and glassy; skin hot and moist, the rash more vivid; tongue thickly coated with a white fur; pulse 92, with more power; bowels not open; urine copious, high coloured. He has a troublesome cough, with viscid rusty expectoration. On *auscultation,* there is coarse blowing expiration in the upper part of the right lung.

Ordered to be cupped to six ounces from between the scapulæ; to take two grains of calomel to-night, and half an ounce of castor oil to-morrow morning.

9th day.—The cupping gave immediate relief; the cough and headache are much less severe, but he was wakeful and restless during the night; his face is flushed and hot; tongue dry and furred. Pulse 98, still with more power; three copious evacuations from the bowels.

Ordered to have his head shaved, and to be cupped to four ounces from the temples; to take two grains and a half of mercury with chalk thrice a day, and a saline draught with camphor mixture every six hours.

10th day.—Restless, complaining of incessant pain shooting from the forehead to the temples and occiput. Pulse 108, small; face hot, flushed and anxious; eyes suffused; skin hot and dry, with very abundant rash; bowels not open.

Ordered to be cupped to six ounces from the temples; to take half an ounce of castor oil immediately, and to continue the medicines.

11th day.—The cupping gave little relief at the time, but his head is in less pain this morning. He had a little sleep, broken by frightful dreams, and is now delirious at times. Head hot; face flushed; skin hot and dry; tongue dry and furred; pulse 110, small, but still with power; three copious liquid ochry evacuations from the bowels; abdomen soft and tolerant; urine abundant. He breathes hurriedly and with difficulty, but *auscultation* detects nothing more than slightly prolonged expiration.

Ordered to have ten leeches applied to the forehead; to take a little more nourishment, and to continue.

12th day.—Restless; had only a little sleep towards morning. The pain in his head is less, but he is delirious, and says that he has lost his voice. Two loose ochry evacuations have passed from the bowels; abdomen tender; pulse 120, very small and soft; otherwise he is exactly as yesterday.

Ordered to continue.

12th day.—He slept at intervals for three or four hours at a

time, and is much more cheerful and sensible this morning. His respiration is less hurried, he is free from pain in the head, and sensible of his own deafness. Still his face is hot, dry, and flushed; eyes less glassy; lips moister; tongue thickly coated on the dorsum, cleaner at tip and edges, slightly moist; skin hot and dry, with less distinct rash; two scanty liquid evacuations; abdomen soft, and tender on pressure; pulse 120, small and soft.

Ordered to continue the saline draught every six hours; to take beef tea; and to have cold lotion applied to his head.

14th day.—Noisy and restless during the night; now he lies on his back, unconscious, breathing with difficulty, and unable to protrude his tongue, which is coated with a thick dry fur; face flushed; skin hot and dry; pulse 118, fuller and firmer; two very scanty evacuations from the bowels; urine abundant. He stares wildly at any one who addresses him, but does not move a feature, and returns no answer.

Ordered to be cupped to six ounces from the temples immediately; to continue.

15th day.—He lay in the same way for two hours after he had been cupped; then, soon after bursting into a profuse perspiration, he recognized and spoke to his father. During the night he lay quiet, and had some sleep; now he is quite collected, and free from pain. Face less flushed; skin warm and perspiring, with a dusky rash; pulse 98, small and soft; tongue moist, furred on the dorsum, the tip and edges clean, slowly protruded; his bowels have not been open, but his urine passes very freely.

Ordered to take six ounces of wine, and more beef tea; to continue the use of the saline draught and the cold lotion to his forehead.

16th day.—Noisy and restless all the night; again more quiet and rational in the early part of the day. Face hot and perspiring; skin hot, with more abundant rash; tongue dry,

brown, and cracked; lips dry, covered with sordes; pulse 88, small; bowels not open. When visited at 3 P.M. he was trembling, and hardly sensible.

Ordered to have a blister plaster applied to the nape of the neck; to continue the use of the wine and beef tea, and to take three grains of sesquicarbonate of ammonia every four hours; to have a common enema immediately.

At 7 P.M. he was lying on his back perspiring profusely; his hands rigidly bent back towards the ulnar side of the forearm; his pulse undistinguishable on account of the quivering of the muscles; tongue dry and cracked. He swallowed with difficulty, but seemed to relish the nourishment given him. At 9 P.M., after the stimulants had been a little more freely administered, the tremors were less; he had lain quiet, and slept a little; pulse 132—144. The blister plaster had not drawn, and the injection had returned unchanged.

17th day.—The injection was repeated, and again returned unchanged; the blister plaster drew well. The stimulants were given freely, and he lay quiet, perspiring all night. His bowels acted freely at 5 A.M., and, without change, he ceased to breathe, apparently exhausted, about 6 A.M.

The body was examined 33 hours after death.—The scalp was strongly adherent to the cranium; the brain and its coverings were in all respects natural; only there was a little old thickening of the arachnoid, and no more than the ordinary quantity of fluid in the meshes of the pia mater. The lungs were slightly gorged with blood; the heart healthy, containing fluid blood. The great end of the stomach was a little injected; there was a single patch of congestion near the lower end of the ileum, and the mucous membrane of the edge of the ileo-cæcal valve was abraded; otherwise the hollow viscera were healthy, and the Peyer's patches unusually indistinct. The spleen was dark and soft; all the other viscera were healthy.

The resemblance of the two last cases is very close in many

particulars : the chief stress of the fever (after the pulmonary affection—to which the fact of its having preceded the cerebral affection and having yielded so readily and entirely to treatment, claim attention—had passed away in the last case,) fell on the same parts, and the morbid appearances were almost precisely alike in both. The immediate cause of death, and the effects of treatment, presented, however, some points of difference which it will be of interest to remark on. But, first, of the results of dissection :—Again, as in the cases of 1846, there was absolutely nothing morbid detectible in the head which could at all explain these symptoms ; merely the scalp was a little dry, and therefore seemingly adherent to the cranium ; the lungs were also a little gorged in both of them ; in the last patient, who lived till the 17th day, there was also a faint trace of ulceration of the bowels. If we looked to morbid anatomy only as a guide in future treatment, there would be at once a decided condemnation of all the depletive treatment here adopted ; but recurring to what has been remarked in Case V. on this subject, we turn here to the safer indications of pathology.

The notes of the 9th and following days leave little doubt that depletion was the right mode of treatment at that time, and the note of the 13th shews that the treatment had been carried quite far enough; for the depletion, while it told so well on the local symptoms, considerably exhausted the patient, and he clearly needed support on that day, now that the continued absence of the local symptoms had made it safe to act a little on this indication. The effects of the depletion, which was again practised on the 14th day, were most satisfactory, and, as the fever went on in its regular progress, there was great expectation of his ultimate recovery. The difficulty of striking the balance between sustaining him generally and depleting him locally, seemed to have been fairly met, and there remained now little to do beyond supporting him. But the care of the clinical clerk from 7 to 9 P.M. could not make good the neglect of the nurse from 2 to 7 P.M. ; he had hopelessly failed,

and the patient died, apparently just when all the difficulty of treatment was past. Here were then two periods: in the first, ending on the 12th day, the cerebral symptoms were fairly combated and subdued; and again, on the 14th day, the same good effect followed the use of local depletion. It was not so in the previous case; there death occurred at the most critical period, and the case, in its symptoms and morbid changes alike, would be by itself most discouraging, for it does not appear on the face of it but that the treatment adopted hastened the man's death. But the last case shews that such is not a fair view of the matter, for the results of similar treatment, upon almost equally unfavourable symptoms, were followed by the best immediate results, and it needs no more than to quote Cases III. and V. to shew that, without any interference, such symptoms are quite sufficient to induce death. The following case, occurring about the same period, supplies, though in a less simple form, a happier illustration of the cerebral complications of fever.

CASE VIII.—*Fever with mottled and petechial rash; affection of the brain, and subsequently of the abdomen: recovery.*

Thomas Mason, aged 18, admitted June 21, 1843. John front ward. A well-made, healthy-looking man, face dusky, eyes dull, skin dry and pungently hot; extremities cool; tongue coated on the dorsum with a thick yellow fur, tip and edges red, with prominent papillæ; bowels open from medicine; abdomen full and soft; pulse 100, very small and soft. His muscles, especially those of the face, are constantly quivering. He complains of headache, lassitude, loss of sleep and appetite, thirst, and chilliness, all of three days' duration.

History.—A pedlar, temperate, well off; has often been to see his sister and a friend in this Hospital with fever; was quite well three days ago, when, towards evening, he had a rigor, which lasted for two hours, and was not followed by heat. He had no sleep that night, from headache and delirium: next day

violent purging occurred from some sulphate of magnesia, and the next day he took to his bed on account of excessive giddiness.

Ordered to be cupped to six ounces from the temples, to have his head shaved, and to take a saline draught with camphor mixture every six hours.

5th day.—He found some relief to his headache after the cupping. He was restless and delirious during the night; now he lies on his left side, the muscles of his face and extremities occasionally twitching; face flushed and dusky; skin hot and dry, the extremities cool; pulse 100, small, soft, but jerking; one loose healthy evacuation from the bowels; abdomen full, tense, painful on pressure; tongue more furred than yesterday, moist.

Ordered to be cupped again to four ounces from the temples, to take half an ounce of castor oil immediately, and to continue.

6th day.—Headache relieved by the cupping. Little sleep. He lies on his back restless, turning from side to side, the muscles still twitching; tongue as before; pulse 96, soft, but jerking; skin hot and dry; several healthy evacuations from the bowels.

Ordered to apply eight leeches to the forehead immediately, and to continue.

7th day.—The headache was entirely removed by the application of the leeches, and has not since returned. He slept quietly. Face flushed and dusky, eyes suffused; skin hot and dry, mottled on the chest and arms; tongue as before; pulse 114, small and soft; one scanty solid evacuation from the bowels; abdomen very tender. He has less twitching of the muscles of the face.

Ordered to apply eight leeches to the abdomen, and to take half an ounce of castor oil immediately.

8th day.—Restless, but not delirious, at night. The leeches drew freely, and his abdomen is now tolerant of pressure, full

and soft; bowels open yesterday evening. The muscular tremors of his face continue, and he is in all other respects as yesterday.

Ordered to take ten grains of equal parts of mercury with chalk and rhubarb to-night.

9th day.—Slept well; lies on his back with his knees retracted, deaf and drowsy; face flushed and dusky; extremities cool; skin hot and dry, the rash fainter, but a few petechiæ on the arms; two dark, slimy alvine evacuations; the epigastrium and right iliac fossa intolerant of pressure; pulse 102, small and soft. He expectorates viscid brown sputa, and complains of pain in the abdomen, relieved by fomentation.

Ordered to apply six leeches to the epigastrium; to continue the saline draught every six hours.

10th day.—No sleep; lies on his side with his knees retracted, so deaf that nothing can be elicited from him, but his intellect seems clear; tongue with a dark chapped crust; pulse 108, small and soft; three scanty slimy evacuations from the bowels; still pain and gurgling on pressure of the right iliac fossa and epigastrium.

Ordered to take four ounces of wine, and two pounds of beef for tea daily; to omit the saline draught.

11th day.—Some little sleep; now free from all pain, but still deaf and drowsy; pulse 116, soft and smaller; three liquid healthy evacuations; numerous large petechial spots on the extremities, especially at the wrists and ancles; tongue with a dry brown streak down the centre, the sides covered with a white fur, the tip and edges clean and red.

12th day.—Quiet sleep; now drowsy and incoherent; pulse 104, small, soft, thrilling; tongue moister. He coughs a little, but does not expectorate; his appearance is generally the same as yesterday.

Ordered to increase the quantity of wine by two ounces.

13th day.—Noisy, sleepless all night; lies on his back, less deaf, constantly calling out, complaining of pain in the back;

eyes suffused; skin dry and hot, with less dusky rash, and the petechial spots more evident; pulse 108—112, small, rather sharp; three liquid scanty evacuations; tongue moist, and red at the tip, with a chapped fur down the dorsum.

14th day.—The quantity of wine was reduced. He was noisy and restless during the night; now he lies in a drowsy state, speaking occasionally, but not answering, and taking little notice of anything. Face flushed and dusky; eyes watery; skin cooler, moist; the rash as before; tongue moist, cleaning; pulse 96, with more power. The deafness continues, but he has no twitching of the muscles.

15th day.—Quieter at night, more coherent; still drowsy; skin cool and perspiring; tongue moist and clean at tip and edges, the dorsum still dry; two scanty liquid evacuations; pulse 80, as yesterday.

16th day.—Good sleep; intelligent, less deaf; says that he feels better, is free from pain, and has some appetite; skin cool, covered with alkaline perspiration; pulse 80, smaller, soft.

On the 17th day the heat and perspiration continued, the feeling of heat now, however, constituting his only complaint. On the 28th the rash and petechiæ disappeared; all his bodily functions were re-established on the 23d, and in a fortnight more he left the Hospital.

The duration of the fever was unusually well marked in this case. Commencing as it did with a distinct rigor, the date of its accession could be ascertained within an hour or two; on the 7th day the mottled rash appeared, and on the 9th the petechial, the disposition to hæmorrhage being marked at the same time by the bloody expectoration, which seemed more probably referable to a general predisposition than to any local cause. Howbeit, the fact was not ascertained, for, while his abdomen absorbed all the treatment which his system could allow, it was not thought right, for the single symptom of bloody expectoration, which appeared otherwise explicable, to risk

fatiguing him by an examination of his chest. The first week having been spent in subduing the cerebral, and the early part of the second the abdominal symptoms, there remained little to do beyond watching the effects of the general stimulant plan of treatment. The notes of the 12th to the 14th day are especially interesting on this point, though, from the change of treatment on the 13th day, it is impossible to say whether the symptoms of the 13th, exceeding in violence any which had been noticed before, were due to over stimulating, or were altogether spontaneous, preceding the almost *critical* termination which occurred on the 14th morning. It should be observed on the mention of the word critical, that the profuse perspiration followed the improvement in his symptoms, and that though the moisture of the skin agreed with the other favourable signs in marking the termination of the fever, yet, as far as carrying away the disease, as the phrase is, was concerned, this perspiration can no wise be considered as critical.

After the 7th day, the character of the fever in this patient quite changed, the cerebral symptoms subsided within the limits usually considered safe and natural, and the stress of the disease lay henceforth on the abdomen. Yet, had he died, there was no certainty, judging from cases occurring at the same time, that any organic changes of the intestines would have been discovered. Why, then, direct any treatment to the abdomen? Simply for this reason, that symptoms of disease of the abdomen, like those of disease of the brain, must be treated, although dissection may shew that they are sometimes independent of appreciable organic disease; for symptoms may indicate the commencement of changes, undiscoverable indeed to the eye, yet amenable to treatment. Should we ever forgive ourselves, if, by a too great reliance on our own powers of diagnosis, we let disease run on to death which might have been prevented? To settle which of two indications of equal moment shall absorb the main treatment, to balance between two contrary ones, such is the use of a probability drawn from other cases; not to let

a probability of safety always outweigh the possibility of extreme danger in the particular case. Doubtful symptoms must be treated rather according to their possible importance than their probable insignificance, while yet their occasional dependence on causes apparently beyond reach must warn us not to spend too much treatment on them. To reduce the functional disturbance to a state consistent with the patient's safety, is the point to aim at: perfect reparation of either structure or function must not be looked for till the fever is past, when it will come surely and speedily of itself.

The three last detailed cases illustrate each other. The first shews merely the danger to be avoided, and the exceeding greatness of that danger; the second carries on the story a little further, and, while it displays at greater length the symptoms of the affection, gives greater encouragement, notwithstanding its fatal termination, to the treatment which was successfully adopted in the third. But it would be hasty to conclude from these cases that local depletion is the treatment recommended as indiscriminately applicable to all symptoms of cerebral affection in fever; there are here two indications on which we may act, namely, to remove pain, or to prevent danger to life. On this second indication, regarding the organic complications of fever as generally the result of increased local action of an inflammatory type—not to say strictly of inflammation—local depletion seems to be almost the only means by which an affection of the brain can be reached, in a patient whose condition forbids any general antiphlogistic treatment; and hence its so frequent adoption. Again, pain, both on its own account, and also as, by preventing sleep, a possible source of danger, requires treatment; and if other symptoms lead to the suspicion of increased action being the cause of this pain, again will local depletion appear most eligible. And it is not only in the treatment of affection of the brain in fever, but in that of all the complications, that depletion is so very generally available. The complications of fever are all

more or less of an inflammatory type, however weak the subject in which they occur. The fever of particular places or seasons may present complications over which various remedies may possess specific influences; such, however, are the exceptions, only to be learnedby practice under the circumstances. When to support, to deplete, to leave alone,—these are first to be learned. We cannot always calculate on the effect of particular drugs in fever, but we can sit and watch the effect of bloodletting and of wine; and see clearly in the further progress of the case what symptoms are referable to the disease, and what to the medicine; but no single symptom, apart from the general nature of the case, has its one remedy; for, taking another illustration from the same source, though pain in the head is often successfully treated by depletion, it would be very injudicious to treat the headache which accompanies the few first days of fever by this means, unless some further symptoms gave good reason to suppose that we were thus attacking its cause; or to conclude that in its removal at the end of the first week we saw anything more than the natural course of things. Again, it would argue a very imperfect acquaintance with disease in general, to treat by local depletion the headache accompanying nervous or bodily exhaustion in the further progress of fever.

Affection of the brain has its direct symptoms, among which headache stands most obvious, and its general symptoms by which the direct signs of disease are to be estimated, with the knowledge that the whole tends to a definite termination within no distant period. Add to this the information concerning the nature of the epidemic derived from previously neglected cases admitted at all periods of the disease, (a field unfortunately large enough without our instituting any experiments of omission,) and all the sources of the indications for treatment of the various forms of cerebral complication are before us. There is room for much discrimination in the application of the remedies. There is the sharp lancinating headache, with symptoms of active cerebral congestion—to use an expression which morbid anatomy

scarcely justifies—for which local depletion and blistering are best adapted; the restless irritability and sleeplessness which will only yield to opium;* the nervous exhaustion alternating with excitement, which must be left for wine and nourishment, and opium, again gradually to remove; the dull headache of early fever, which will best cure itself; the hopeless coma and convulsions of approaching death, and the delirium, from whose importunate symptoms our better judgment must always turn aside to the discovery of its cause.

* I would not spoil, by any attempt to compress its conclusions into narrower limits, the well-known paper by Dr. Latham, on the use of opium in fever, (London Medical Gazette, Vol. x. p. 10,) which no student of this subject should neglect to read. The testimony of Dr. Percival (On Typhous Fever, p. 150) may be added, to shew how powerful an instrument for good, in fever, so small a dose as five drops of laudanum is, in skilful hands.

CHAPTER IV.

AFFECTION OF THE LUNGS IN FEVER.—NATURE OF THE AFFECTION: PERIOD AT WHICH IT MAY OCCUR: LIABILITY TO RELAPSE OF CASES THUS CHARACTERIZED: OCCASIONALLY THE ONLY PROMINENT SYMPTOM OF FEVER.—INCIDENTAL ILLUSTRATIONS OF THE DANGER OF COLLAPSE: OF THE TREATMENT OF VOMITING AND DIARRHŒA.

The complications of fever differ much in kind and degree, both in different epidemics, as already seen, and also according to the difference of the season; but the organs contained in the three great cavities of the body are not affected in exactly the same manner respectively by these varying conditions. Affection of the brain seems almost exclusively connected with the essential nature of the epidemic, while affection of the lungs appears to depend in as great a degree on the season of the year and external temperature, and both the season and the nature of the epidemic stand in close relation to the frequency and severity of affection of the bowels. Thus, from the present instance, in the fever of 1846 most of the cases of pneumonia occurred during the early part of the year, then during the summer this complication was lost for a while, reappearing, with less severity however, in the colder season of autumn.

Pneumonia is the term employed to express the nature of the affection of the lungs in the following cases narrated in this chapter,—a name which, considering the accurate information possessed concerning the signs and morbid appearances of this disease in its simple form, it might seem reprehensible to employ here in so loose a signification as a reference to the details of the dissection in the fatal cases (X. XII.) displays. Yet it

would be representing cases far otherwise than as they are witnessed to attempt any more accurate nomenclature, and to dwell separately on bronchitis and pneumonia, when probably, after all, the pulmonary affection in fever is something intermediate between the two, not exactly referable to either. In a tabular analysis of cases, where the nice distinctions of one disease shading into another are lost, and the disease must be called by one or other name, the difficulty of the diagnosis disappears. The conclusions from numbers are incontrovertible; it is therefore the more necessary, even at the risk of prolixity, or being thought needlessly to increase the obscurity of the subject, to set forth as fully as may be all the fallacies which may lurk behind any numerical inferences, by an examination of the elements which those numbers represent.

As to the symptoms during life, bronchitis may appear under two conditions, either just preceding death and scarcely distinguishable from the tracheal rattle, or at any period as a trivial affection. A little more severe, and—as the case becomes otherwise of importance—the disease runs on into something undistinguishable from pneumonia. But this, as far as we can learn, may not be pneumonia, for here are causes in operation tending to vitiate the conclusions from all the means of diagnosis at command: first, the tendency of bronchitis in fever always to affect the smallest tubes, thus obscuring the results of auscultation, and next, that of the blood to gravitate to the posterior part of the lungs of debilitated patients lying on their backs, thus vitiating the inferences from any dulness discovered about the base of the lungs by percussion. Add to this the difficulty of fairly observing these signs, such as they may be, in the low forms of fever, and there is an end of all accuracy of diagnosis from the symptoms, were even the morbid appearances whereby these short comings might be made good most accurately distinguishable. But the case is far otherwise, for who shall say, even in the subject of ordinary disease, where simple congestion from gravitation or other causes ends, and where

pneumonia begins? And yet close around this indefinable line it is that the changes in the lungs during fever lie. And when softening, with œdema and staining of the tissues, have to be allowed for, as well as the fugitive nature of all the changes arising from bronchitis, we shall not be found to have overrated the difficulties of an accurate discrimination, either during life or after death from fever, between bronchitis, pneumonia, and simple congestion from gravitation.*

These facts seem to justify the following brief statement, of general not of universal application, that the pulmonary affections of continued fever are not distinguishable with certainty and accuracy in the majority of the severe cases during life, nor—involved as they are with the most difficult part of the subject in an anatomical point of view—after death; but as at both these periods the signs and changes respectively approach most nearly to those of pneumonia, this term, in a somewhat looser signification however than ordinary, seems best applicable to them collectively.† Were this a question of nomenclature

* The difficulty of this part of the subject has been fully set forth by Louis, (Fièvre Typhoïde, Tome I. p. 328—336), who notices, first, that the different morbid appearances are not different stages of the same process: the form described under Case X. of this series, especially, not being explicable on the supposition of its being a different stage of the change more commonly noticed after death from fever. Next, as to the common change: it differs from ordinaryhepatization and never more strikingly than when the two co-exist, in colour and texture, and the fluid contained in the substance of the lung is also different; but it does not follow the line of the gravitation of the blood, and is therefore obviously not referable to this alone. The name splenization is as applicable as any term can be to the morbid changes themselves, (which, it must be recollected, are not peculiar to fever) expressive of an analogy in their cause to that of hepatization, but marking the difference of the results.

† That bronchitis, differing in nothing from the simple form of

only it might seem better to have passed the matter entirely over without remark, merely using the general expression of affection of the lungs, instead of the more limited one of pneumonia. But this would have fallen short of the object in view; for as far as a name can influence treatment it is desirable that it should do so here: this affection of the lungs, by whatever name it may be called, is best treated by antiphlogistic measures, and especially by local depletion, so long as their actual employment be not actually forbidden by the other symptoms. Of the names expressive of such a condition, that which applies most nearly to the severer cases seems preferable,—pneumonia rather than bronchitis, and either than congestion from gravitation, implying as that does the commencement of so hopeless a state, where the physical is prevailing over the vital force, and the indications are no longer to treat disease but to save life. But the mere name should influence the treatment no further, for it is a fact that the pulmonary affections of fever neither require nor are benefitted, under ordinary circumstances, by the use of mercury.

Unlike the other complications of fever, pneumonia would seem to be as much to be dreaded in the relapse as in the first attack, and further, cases of fever accompanied by pneumonia, or in which the pulmonary complication is most prominent, are particularly liable to relapses. This fact admits of a very obvious

the disease, and fever, may co-exist, I have no intention to deny; the present winter (1847-8) supplies abundant proof of this fact; but the bronchitis seems to have no further connection than that of coincidence with the fever, of which, in its commencement, progress, and termination, it appears wholly independent. Its treatment differs in no respect from that required under ordinary circumstances, only the fever will probably contra-indicate any active measures; the patient may die of either disease, for the combination is unfavourable to both; but if he recover from fever, there still remains to cure the bronchitis, which is in this respect like the pure pneumonia occurring during fever, and unlike the mixed pulmonary complication of fever described above.

explanation, for in Hospital practice, to which these remarks have almost exclusively reference, the causes which may act injuriously on the lungs, such as accidental exposure to cold—the most common cause,—are not so easily guarded against as are those which may act injuriously on the brain or the intestines previously weakened by or predisposed to disease. The immediate cause of the relapse in such a case lies less in the fever itself than in the season of the year, which, first inducing the complication of fever by cold, subsequently produces a relapse of fever by the renewed action of the same cause on an organ now, from having been previously diseased, the less able to resist the influence.

The following case must stand as an illustration of a very severe form of pulmonary complication, coming on at a late period, and protracting the ordinary duration of fever. The exact correctness of the dates assigned, within a day or two, may be questioned, but the history gave no account of a relapse, and it seemed very unlikely that the pneumonia had been going on from the beginning.

CASE IX.—*Fever, with abdominal disease; pneumonia; miliary rash; recovery.*

William Rowse, aged 21; admitted Oct. 15th, 1846. John back ward. A tall, well-made man; face distressed; skin covered with a mottled red rash, with which are intermixed numerous miliary vesicles; tongue moist, a white fur on the dorsum, the tip and edges red; pulse 116, small and soft; respirations 26; bowels relaxed; abdomen tympanitic; has cough, pain in the chest, and occasional delirium, all of about three weeks' duration.

History.—A miller, from a marshy district. Three weeks ago he caught cold when heated; next day he had a rigor, followed immediately by heat and perspiration, which still continue, and in a few days by cough. He has been under medical treatment. On *auscultation*, large crepitation is audible

through the lower lobes of both lungs behind, with impaired resonance on percussion.

Ordered milk diet, with arrow-root; to take five grains of compound mercury and chalk pill twice a day; and a saline draught, with half a drachm of aromatic spirits of ammonia, every four hours.

23rd day.—He had some sleep, but talked during the night; tongue dry and chapped; bowels not open; abdomen tender, gurgling on pressure in the right iliac fossa; pulse 104, soft, full, and jerking; skin perspiring, the miliary vesicles filled with an opaque yellow fluid. He has still cough, with a tawny adhesive expectoration. On *auscultation* there is abundant smallish crepitation in the lower right lobe behind, and decidedly impaired resonance on percussion to the same extent.

Ordered to be cupped to a few ounces beneath the right scapula; to take wine, four ounces, and beef, one pound, for tea, daily; and to continue.

24th day.—Noisy and restless during the early part of the night; now he is composed, and answers questions rationally; he has less cough, but still expectorates a bloody, adhesive mucus; tongue moist, chapped, cleaner; bowels open three times, the last evacuation solid; pulse 102, small and soft; the rash is very abundant.

Ordered to continue; to increase the quantity of wine to six ounces daily.

25th day.—He slept well; he has had one dark, half-solid evacuation; pulse 108, small and soft; he complains of no pain, only of the stinging of the rash, which is very abundant all over him; his skin is profusely perspiring over the upper half of his body; tongue brown and dry. *Auscultation,* as far as it can be practised, detects sibilus throughout the front of the chest and the right axilla.

Ordered, to take wine, ten ounces, daily; sesquicarbonate of ammonia, three grains, with tincture of squills, twenty minims, in mint water, every four hours; to continue

the pills, and to have a large blister plaster applied to the right axilla.

26th.—Little sleep, restless; the blister plaster drew well; the cough and expectoration continue as before; face anxious, profusely perspiring; tongue rather moist, with a brown fur; lips covered with sordes; pulse 116, full, soft, fluttering; one relaxed, rather dark motion; abdomen tender; he has slight subsultus tendinum.

Ordered to continue.

27th day.—Broken sleep, talking all night; face flushed and anxious; tongue coated with a dry yellow fur; pulse 102, small, very soft; one relaxed evacuation from the bowels; abdomen tense and tender.

Ordered to take the pill every six hours, and to continue.

28th day.—Better and quieter sleep; bowels not open, right hypochondrium tender on pressure; tongue with a dry brown fur; pulse 96, small, vibratory; cough as before; respirations 26, laboured; he is dull, pale, and languid.

Ordered to continue; to have eight leeches applied to the right hypochondrium.

29th day.—He does not ascribe any relief to the application of the leeches. He was noisy, and had very little sleep during the night. Two solid evacuations; abdomen rather tender in the right lumbar region; cough easier, with looser expectoration; respirations 28; pulse 100, feeble; he is still pale and languid.

Ordered to take the pill thrice a day; a saline draught, with camphor mixture, every six hours; to continue the wine.

30th day.—Slept at intervals; face flushed; tongue dry and chapped; pulse 96, with more power; bowels scantily open; abdomen still rather tender; skin warm and dry; the rash continues. *Auscultation* detects free admission of air, with some crepitation, into the lower right lobe in front.

Ordered to continue: to have six leeches applied to the right hypochondrium.

31st day.—Quiet sleep; tongue cleaner; pulse 112, small,

jerking; skin warm; some fresh vesicles on each flank; bowels not open; he has still pain in the epigastrium and right hypochondrium; respiration still difficult; the cough remains, accompanied by viscid, tawny expectoration.

Ordered to reduce the daily amount of wine to six ounces, and to continue.

32d day.—Slept well, but talked much in his sleep; tongue dry, rough; pulse 102, with more power; bowels not open, the right hypochondrium still tender; expectoration viscid, but of a lighter colour.

Ordered to continue; to have four leeches applied to the right hypochondrium.

33d day.—He slept well, and his appearance is much improved; bowels not open, abdomen hard, still rather tender; tongue moist, with a streak of white fur down each side; pulse 96, with good power.

Ordered to continue.

34th day.—Good sleep; face flushed, but composed; bowels still confined; abdomen softer, tolerant; tongue dry in the centre, clean and moist at the sides and tip; some fresh vesicles in the axillæ.

Ordered to reduce the daily amount of wine to four ounces; to take two drachms of castor oil at once, and to continue.

35th day.—Good sleep; two fæcal, partially solid evacuations; tongue dry, cleaner; skin moist; pulse 108, with more power.

Ordered to take two ounces of wine daily, and to continue.

36th day.—Noisy during the night; skin warm and moist. He feels his appetite returning. He has two small collections of pus in the glutæal region. On *auscultation,* a little crepitation and irregular creaking sounds are audible over the right side of the chest behind.

Ordered a mutton chop daily; to leave off his other medicines, and to take half a drachm of aromatic spirits of ammonia every six hours.

Good sleep, increasing appetite, a soft pulse gradually falling in frequency, and bowels acting regularly without medicine,—such is the import of the few remaining notes of his symptoms, the treatment consisting in the exhibition of quinine with nutritious food. The abscesses burst of themselves within two or three days of their having been first observed, and all that remained to be noticed till his discharge was a slight cold caught on first getting up, which delayed his convalescence for a few days, and the appearance of anasarca in his feet towards evening about the same period. On his discharge, air entered both lungs equally well, with only perhaps a little longer expiration on the right than on the left side.

There are some points in the above narrative presenting peculiarities different from what has been remarked in the common run of cases. Of these, the long persistence of the ordinary rash, with the very abundant vesicular rash, need be hardly further noticed, than just to call attention to their description in the detail of the case. There is another point which seems to need a little explanation. On the thirty-first day, after a quiet night, he had pain in the abdomen, and there was a jerking or irritable condition of the pulse. Connecting these symptoms together, he was supposed to be rendered irritable by an undue amount of stimulants, the general irritability being perhaps accompanied by increased action around the ulcers which were supposed to exist in his intestines. The wine was therefore slightly diminished. The same idea still prevailing, that the local cause for all the symptoms lay in the condition of the intestinal mucous membrane, caused any symptom bearing such a meaning to be immediately acted on; so, on the thirty-second day, leeches were applied to the abdomen; and on the thirty-fourth and thirty-fifth days the wine was again diminished. On the thirty-sixth day these symptoms were all explained by the discovery of two softened spots on either side of the sacrum, which subsequently swelled, and spontaneously discharged a small quantity of pus. It is a less usual form of bed-sore when the

pus collects under the skin, than when the affection begins at once from the surface by the sloughing of the skin; and it is easy to see how the existence of this affection of the back was overlooked by nurses used to another form of disease. But the matter of greatest interest at the time was to find thus satisfactorily explained that little something which, only obscurely appearing through the symptoms, had modified the treatment and the prognosis, and given occasion to unfavourable anticipations where all besides was going on so well; though it would be greatly underrating the intimate sympathy which subsists between all the local actions in fever, at once to presume that in these collections of pus lay the immediate cause of all the symptoms; of those, for instance, referable to the abdomen.

It is not that we can always hope to find a cause for all that we observe, and to refer each symptom correctly to each suffering part; but a case is not fairly made out till we have done so. Is it not this need of daily inquiry, this constant attention kept up to the last, which gives so lively an interest to the study of fever, and because, too, what is thus gained is so immediately applicable to the treatment of disease generally? For it is not in fever only that a series of symptoms, which have puzzled the physician for some days, are at last explained by the appearance of an abscess, suspected perhaps, and frequently looked for, but long undiscovered.

Abscesses do not appear to arise under any such unvarying conditions that we can tell when to expect them; their appearance is interpreted according to the general bearing of the case; they throw no light upon it themselves. When they appear during convalescence similar cases are called to mind, whereon to ground a favourable interpretation, and when they appear while yet the disease remains stationary, or is getting worse, they are looked on as the possible result of phlebitis. The uncertainty which prevails with regard to the explanation of deposits of pus under ordinary circumstances, is not removed in fever, nor, apart from the inquiry into the immediate cause of the deposit, is it clear

under what general circumstances, or with what form of fever, abscesses most commonly occur. Andral, who has considered this subject,* leaves it in uncertainty; but speaking from a limited observation, the young and weakly, and especially strumous subjects, appear to be most liable to them, chiefly during convalescence, and this irrespective of any particular form of complication. The formation of sloughs over the sacrum is more easily explicable; they occur in an inverse ratio to the degree of care shown on the part of the nurses in turning the patients, and attending to cleanliness. Other circumstances being alike, it is the age and weight of the patients, the general constitutional powers and duration of the illness, that will determine the formation of sloughs in particular cases. Generally speaking, women suffer much more in this way than men; these sloughs being seen in weak, overgrown girls, even in rheumatic fever.

So strongly marked in the outward signs of fever and pneumonia as the last case was, it will be well to contrast it with another case remarkable for its great obscurity on both these points. There has been occasion already to speak of typhus proving fatal before the diagnostic characters were fully developed, leaving it uncertain whether the disease would have been typhus or scarlatina;—the obscurity here arose from another cause, the signs were not suppressed, but unintelligible. These remarks are made chiefly with reference to the rash, on which so much of the diagnosis of febrile diseases at an early period depends, for it is a question which often arises, to be determined, in the absence of other data, only by examination of the rash itself, whether the disease be typhus, or measles, or scarlatina. Considering how like the typhus rash is to that of measles, it is rather to be wondered at that the difficulty of diagnosis between these two diseases does not more frequently arise. Practically, the difficulty lies between scarlatina and typhus; the diagnostic characters of each are sufficiently plain, generally speaking, but the rules occasionally fail in their appli-

* Clin. Méd., Tome i., p. 593.

cation; and this may be because scarlatina has a tendency to take on a typhoid form, that the rules of diagnosis in fact do not fail us, but the grounds are removed in the actual merging of one disease in the other. But leaving the consideration of this abstract question as to what may be, it will be of interest to inquire what was, the exact nature of the affection in the following case, where the above difficulty hung over the diagnosis.

CASE X.—*Fever, with dusky rash, following scarlatina (?); death on the eighteenth day; dissection.*

Maria Brooke, aged 18; admitted October 8th, 1846. Mary back ward. Face flushed and dusky; skin hot, the cuticle partially desquamating, with a diffused dusky redness over the chest; extremities cold; bowels relaxed; abdomen tender on pressure; pulse 120, small and soft; tongue clean, dry, red, and chapped; respiration hurried; complains of deafness, pain in the head and limbs, thirst, loss of sleep and appetite, of about two weeks' duration.

History.—Always short-breathed, but otherwise healthy till twelve days ago, when, the children in the family where she lived having been taken ill with fever, accompanied by aphthæ and sore-throat, she was seized with a sensation of tightness of the chest; then came rigor, sore throat, and pain in the head. Four days ago she menstruated, as usual; within the last three days she has become deaf, and it is only to-day that the surface of the body has become dusky, having hitherto been quite pale. Till last night she has had no sleep. Her throat is dry and red, but apparently not swelled, and she swallows easily. On *auscultation,* air seems to enter the lungs freely everywhere.

Ordered milk diet with arrow-root; four ounces of wine daily; and five grains of compound mercury and chalk pill to-night.

14th day.—She slept well, and is now drowsy; face dusky; skin generally hot, extremities quite warm; bowels not open,

abdomen distended, tender; tongue moist, with prominent papillæ; pulse 120, small and soft; respirations 40.

Ordered to leave off the wine. To take an effervescing draught every four hours.

15th day.—Slept quietly and well; face still flushed; skin hot and perspiring, distinctly mottled on the abdomen; tongue clean and dry; pulse 120, small and soft; respirations 54; bowels much relaxed, abdomen tense and painful.

Ordered to continue.

16th day.—Broken sleep; wandering at night; now she is drowsy, but quite rational; she had a slight rigor this morning; face still flushed and dusky; tongue dry, chapped, and tremulous; skin cool; pulse 132—140, very small; urine and fæces passed unconsciously; abdomen tense and painful.

Ordered to have a blister plaster applied to the abdomen; to take four ounces of wine, and one pound of beef, for tea, daily; and five grains of compound mercury and chalk pill thrice a day.

17th day.—She lies on her back; paler, but still very dusky; less deaf, and quite rational; she sleeps much; pulse as before; bowels not open; tongue dry and chapped; respirations very irregular, 38—60.

Ordered to continue.

18th day.—Last evening she seemed quite cheerful; she slept well during the night; bowels open two or three times, the evacuations light-coloured. At 6 A.M. she said that she saw figures in black, then sank rapidly, and died in about four hours.

Body examined 25½ *hours after death.*—Neck relaxed, limbs rigid, blood coagulated, the surface of the body very dusky. The brain was externally rather dark, owing to the loaded state of the large veins, and the plexus choroides were also dark; but the substance of the brain was quite firm and healthy. The fauces were dusky, though not evidently loaded with blood; no ulceration appeared anywhere. The lungs,

behind, were dark and hard, and raised into little lobular masses, which, on section, appeared dark and dry, contained no air, and sank in water. The posterior parts were thus affected generally, without relation to the divisions of the lobes. The front of the lungs was slightly emphysematous. The pericardium contained a few drachms of clear fluid; the heart was healthy. The mucous membrane of the stomach was softened, and here and there slightly injected. The intestines, small and large, were quite healthy, excepting the lowest three feet of the ileum. In this space, going from above downwards, the Peyer's patches appeared to be raised,—then they were slightly injected,—then the edges appeared as fungous rims round the patches. Now, the affection was concentrated in one or more points of these patches, which were dusky and livid, almost sloughing. Just round the ileo-cæcal valve were a few ulcerous spots, stained yellow by adherent fæcal matter. Among the patches rose hard round knobs, indicative of the affection of the solitary glands. The mesenteric glands were dark and congested, but very little enlarged. Spleen very large, dark, and soft. Liver soft, otherwise healthy in appearance. No changes bearing any particular relation to the disease of which she died were noticed in any other organs.

Looking at the history of the case—at the symptoms of the disease in the children from whom, or at least from the same source as whom, this patient may fairly be supposed to have received it—at the few symptoms which she herself presented in the early part of the attack—and lastly, at the desquamation by which those symptoms were followed, it appears most likely that she had, in the first place, scarlatina. But she did not die of scarlatina; she died of typhus, with the symptoms and the morbid changes specifically referable to that disease: she had the rash during life, and the enlargement of the Peyer's patches discovered after death, such as is found in no acute disease besides typhus.*

* Louis, Fièvre Typhöide, Tome i. p. 198, ii. p. 107.

Then the whole case stands thus :—that there is good reason to suppose that she had scarlatina at first, but that during that period typhus fever commenced, which terminated her life on the eighteenth day of her illness, and probably at a somewhat earlier period of the existence of typhus fever. A means of calculation, imperfect though it be, is supplied by the appearance of the rash, which is seen generally about the eighth day. Here it was first noticed on the fifteenth; but if this occurrence, and the death on the eighteenth day, be placed a week earlier, the case stands well as one of continued fever, fatal on the eleventh day, occurring during convalescence from scarlatina.

The condition of the lungs* was very remarkable, and in some degree to be connected with the livid dusky hue of the surface of the body. But it cannot be admitted as the complete explanation of that appearance, for the same may be seen in cases of fever, where the lungs are quite pervious, as if the fault lay more in the chemical than in the mechanical part of the respiratory act. It is only necessary to guard against one inference—that the appearance of the skin had anything to do with the supposed presence of scarlatina; for the skin had been pale during the period when the scarlatina may have existed, and desquamation, more clearly to mark the distinction, was taking place at the same time as this duskiness, the precursor of the regular typhus rash, became visible.

Only one more remark seems called for. Having taken every occasion to observe upon, and illustrate, the necessity of studying each case of fever day by day, and of prescribing directly for the symptoms as they arise and threaten danger, it is necessary to point to this case as one of a contrary description, as one of those where the information supplied by contemporary cases is at least as valuable as that obtained from examination of the symptoms of the particular case. She apparently died of that sudden overwhelming collapse which has been before alluded to as occurring in more than one case about this time, a

* See Note, supra, p. 63.

collapse from which no amount of stimulants could raise the patient, and in comparison with which all dangers from local inflammations sink into nothing.

The difficulty of distinguishing between rubeola and typhus, which occurred in the annexed case, is the claim for introducing in this place a case whose details, as illustrating the occasional severity of pneumonia during a relapse, will not be otherwise uninteresting in connection with the present part of the subject.

CASE XI.—*Fever, with rubeoloid eruption; relapse, with stress of the disease on the lungs; recovery.*

George Bridge, aged 18, admitted January 20th, 1846. John front ward. Well made; dark complexion; skin hot and moist; the face and chest dotted over with an abundant crop of bright red, slightly elevated spots, fading on pressure, varying in size up to a line in diameter, generally distinct, but some few confluent; there are a few of these spots also on the arms and abdomen; tongue moist, with a thick white fur on the dorsum, clean and red at the tip and edges; pulse 84, small and soft; bowels confined. He has coryza, with pain in the head and chest, and general soreness of five days.

History.—A day-labourer, temperate. A week ago he caught cold, and had a shivering, followed by heat, but did not feel really ill till two days after, when his head began to ache, which first compelled him to give up work. Three days ago came pain in the chest, and cough, and these symptoms have continued increasing to the present time. The rash did not appear till this morning.

Ordered a warm bath; a saline draught, with ipecacuanha wine, twenty minims, every six hours.

7th day.—Slept well. Skin hot and dry; face flushed; the rash fainter; tongue as yesterday; pulse 108, soft. He complains of thirst, slight cough, with scanty expectoration of watery mucus.

Ordered to continue the medicines.

8th day.—His bowels have been freely evacuated; his general symptoms remain the same, but he has a feeling of illness which he cannot describe.

Ordered to continue.

9th day.—Slightly delirious during the night. Face dull and heavy; skin cool and moist; the rash, which had disappeared yesterday, has now reappeared on the chest in broader patches, of a more vivid red; tongue covered with a thick fur; three loose bilious evacuations from the bowels; pulse 96, small, feeble. There is occasional sibilus at the base of the lungs.

Ordered, wine, six ounces; beef, for tea, one pound; compound mercury and chalk pill, five grains every eight hours.

10th day.—Good sleep, without delirium. Expression still dull, with the same slow hesitating manner; tongue dry and red, with a broad, dark-brown, central streak; pulse 124, small and soft; bowels open twice, motions fluid, of a light ochry colour; rash more dusky. He complains of pain and heat of head, but takes his food well.

Ordered, wine, eight ounces; beef, two pounds; to continue the pill; cold lotion to his head.

11th day.—Good sleep, rambled a little; face dull, with a dark ring round the eyes; tongue cleaner, but still dry, and brown in the centre; two relaxed, ochry evacuations from the bowels; tenderness on pressure in the right iliac fossa; skin hot, slightly moist—the rash less distinct. He is deaf, but quite sensible; finds much comfort from the cold lotion; complains still of pain in the head, and of cough.

Ordered to continue the medicines; to take ipecacuanha wine, ten minims, with aromatic spirit of ammonia, twenty minims, and mucilage, one drachm, every four hours; a blister plaster to be applied to the front of the chest.

12th day.—Slept well; the blister rose well; tongue moist, with thick, rough, yellow fur; less cough; otherwise much as yesterday.

Ordered to continue.

14th day.—The rash has almost gone; pulse 96, small and soft; tongue clean and moist.

Ordered to leave off the pill; to continue the rest.

15th day.—He had some annoyance from a visitor to-day; he is now dull; tongue covered with a thin, rough fur; pulse 108, small, soft; two relaxed fæculent evacuations, abdomen rather tender; skin cool and moist, without rash.

Ordered to continue the same medicines.

16th day.—Good sleep; tongue clean, dry in the centre; pulse 124, small, and soft; skin cool and moist; three healthy evacuations; he is restless, and his face is flushed, but soon becomes pale on sitting up. He complains only of pain on pressure of his abdomen; he has no cough, nor can anything be discovered in his chest on *auscultation*.

Ordered to apply a blister plaster to the abdomen; to continue as before.

18th day.—The blister did not rise well; he sleeps well, but still looks dull; tongue clean at tip and edges, but still furred on the dorsum; pulse 112, small; bowels relaxed, the evacuations slimy; he has more cough, with some pain in the right side.

Auscultation.—Right lung; before, small crepitation, with dulness on percussion beneath the mamma; behind, small crepitation in the scapular region, and down to the base, on full inspiration; dulness on percussion to the same extent, and bronchial breathing and bronchophony throughout the scapular region; left lung healthy.

Ordered to be cupped to six ounces beneath the right scapula; to take compound mercury and chalk pill, five grains, every eight hours; to omit the draught.

19th day.—Felt relieved by the cupping; cough the same, with adhesive mucous expectoration; tongue with a thin fur, rather dry on the dorsum; pulse 108, small and soft; one relaxed, greenish evacuation. *Auscultation* gives generally the same results as yesterday.

Ordered to apply a blister plaster below the right mamma; to continue as before.

20th day.—The blister rose well; tongue red, rather dry; pulse 92, small.—*Auscultation :* Small crepitation at the end of inspiration, about the scapular region; below, only a few scattered occasional crepitations. Dulness on percussion about the base.

Ordered to continue the pills; to return to the use of the ipecacuanha wine and mucilage, as on the eleventh day.

22nd day.—Sleeps well; pulse 84, soft; still ochry evacuations from the bowels; and still, on *auscultation,* abundant small crepitation in the right scapular region.

Ordered to continue as before.

28th day.—Three days ago no change was noticed in the auscultatory signs; now there is some coarse tubular breathing about the scapula, and impaired resonance on percussion, to the same extent only.

32d day.—This day all medicine was discontinued; he was pronounced well, and discharged in a few days afterwards.

This man, on admission, was supposed to be suffering from measles. It is true that all the particulars of the case did not agree with that supposition; but during the prevalence of any epidemic, it is notable that the forms of other diseases are modified, so as to approximate to the character of the epidemic. In the present case it seemed more natural to overlook this want of agreement, (which chiefly concerned the date of the rash, and which was nearly got over by dating his illness, not from the rigor, but from the time when he began really to suffer,) than to consider as characteristic of the ordinary spotted fever a rash which developed itself chiefly on the face; so much, indeed, as to produce swelling which did not subside till the eleventh day. The sequel of the case does not render it improbable that he had measles, followed by common spotted fever, and this again by a relapse; but leaving alone the question of the name of the dis-

ease, it will be of interest to look into some of its other peculiarities.

This rash has been noticed on the face in three out of 120 cases of fever occurring during the last few years, though in all of them there was some peculiarity, so as to render it doubtful whether the rash was not to be considered the result of some intercurrent affection. Louis has noticed the rash on the face once in twenty-five cases, which approaches near the above average.*

It will be seen that the case divides into two parts, for the patient was nearly well on the fourteenth day, when mental disturbance induced a relapse which again placed his life in danger. It may seem very unphilosophical to attribute an attack of pneumonia to a passing vexation rather than to some casual exposure to cold; but it did not appear certain that anything else had interfered to induce this secondary disease, which, albeit chiefly manifested in the lungs, the tenor of other cases observed about the same time would incline one to refer rather to a return of the constitutional disease than to the engrafting of a local disease on an enfeebled body.

With this change in the course of the disease the treatment also changes, though the absence of direct statement in my notes does not allow me to enter any such change now in the account of the case. The nourishment and stimulants were in some degree diminished, local depletion was employed with marked good result, and by the twenty-second day he may be said to have been fairly out of danger. On this point it is noticeable, that in the early part of the year, with the accession of any pulmonary complication, the strength rose also, and the pulse, which had been sustained by wine, now, with less amount of stimulants, indicated the safety of local depletion. The same remark would not apply to the fevers of the latter part of the year, where each new complication, as it arose, indicated an

* Fièvre Typhoïde, ii. p. 96.

increased amount of stimulants, if it was to be treated by local depletion.

To enter fully into this case it will be of advantage to compare it with another, resembling it in many respects, but differing unfortunately in its termination.

CASE XII.—*Fever without rash; death by relapse on the thirty-second day; ulceration of the bowels, with commencing cicatrization.*

Anne Jordan, aged 18, admitted Sept. 27th, 1846. Mary front ward. A stout, healthy-looking girl; face flushed; skin hot and dry; tongue moist and furred; pulse 104, feeble; bowels relaxed, motions bilious; respirations 27, hurried. Has general chilliness, pain in the head, chest, and abdomen, with thirst, sleeplessness, and occasional delirium, all of seven days' duration.

History.—Waits at an eating-house; was taken ill seven days ago with shivering, vomiting, and complete prostration of strength. The vomiting has not recurred, but for the last three days, with the continuance of the other symptoms, she has had pain in the chest, and diarrhœa, and during the last two nights delirium. *Auscultation* detects nothing morbid.

Ordered, vinegar lotion to the head; saline draught with camphor mixture, one ounce, every four hours.

9th day.—Slept well, without delirium; has less pain in the chest and abdomen; skin cooler; pulse 92, still feeble; respirations 21, natural.

Ordered to continue.

18th day.—On the tenth day she had some diarrhœa, and the compound mercury and chalk pill was prescribed, which it was found necessary to continue till to-day, when the note runs that she still feels weak, and her sleep is disturbed. She has one healthy evacuation daily; skin warm and moist; tongue still thinly furred; pulse 92, small and weak.

Ordered, an effervescing draught thrice daily, and a mutton-chop.

24th day.—She has been going on favourably; she gets up for some part of the day, and presents little to notice in her steady progress till to-day. It appears that she was wakeful and restless last night; now her face is pale; skin dry and hot; tongue furred on the dorsum, with red tip and edges; pulse 84, feeble; bowels once open; respirations 32, hurried. She has a fluttering sensation at the epigastrium.

Auscultation.—Rhonchus and sibilus, with impaired resonance on percussion, throughout the right lung.

Ordered a saline draught, with camphor mixture, every four hours; compound ipecacuanha powder, eight grains, to-night. To leave off the meat.

25th day.—Wakeful and wandering at night; face pale; skin hot and dry; tongue more furred; pulse 120, feeble; bowels open twice; respirations 24; she has no pain, but is thirsty, and feels very weak.

Auscultation.—Some scattered crepitation about the base of the right lung.

Ordered to continue the draught; to take compound antimony powder, six grains, to-night, and to have six leeches applied to the right side of the chest.

26th day.—The leeches drew freely; she was again restless and delirious at night. This morning she had a profuse perspiration; now her skin is hot and dry; tongue inclined to dry; pulse 124, very feeble; bowels once open; respirations 32. She has dyspnœa, but no pain.

Auscultation.—More abundant crepitation about the base of the right lung.

Ordered mercury and chalk, three grains, thrice a day, and a blister plaster to the right side of the chest.

27th day.—The blister rose well, and she has now no dyspnœa; noisy and restless during the night; face anxious; skin hot

and dry; tongue dry and brown; pulse 130, very small and feeble; respirations 25; bowels once open.

Ordered to continue.

28th day.—Noisy and sleepless; skin dry and rough; tongue dry; sordes collecting about the teeth; seven dark watery evacuations; abdomen tense and tender; pulse 136, very feeble; respirations 24.

Ordered compound mercury and chalk pill, five grains, thrice a day: saline and camphor mixture, with compound spirit of sulphuric ether, fifteen minims, thrice daily, and one pound of beef, for tea.

29th day.—Better sleep; bowels twice open; abdomen tense and tender; tongue dry, with a dark black crust; pulse 144, extremely feeble; surface cold; respirations 29. She is just conscious, and says that she feels better, but she looks like a corpse as she lies on her back, reaching at imaginary objects in the air. She was watched for some time, while wine was largely administered till the pulse gained a little strength, then ordered compound sulphuric æther, one drachm every four hours, and beef-tea to be given by injection, in case she was unable to swallow it.

At 8, P.M., she was more composed, and the surface was warmer.

30th day.—Some sleep at intervals; face less pale, but still the same hurried, anxious expression, when roused. She has had a beef-tea injection two or three times, and retained it.

Continue the same medicines, adding ten minims of laudanum to the next draught, and taking about twelve ounces or more of wine.

31st day.—She lay drowsy for some time after the use of the laudanum. Her appearance is much as yesterday, only perhaps her tongue remains moist for a longer time.

Ordered to continue.

32d day.—Noisy respiration during the night, 42, with loud

rattling; pulse 150 and upwards, much depressed during inspiration; two relaxed, very dark evacuations. She suffers a good deal from cough, is roused with difficulty, but is still sensible. She retains the injections.

She was ordered a blister plaster, to be applied to the front of the chest, with any amount of stimulants that could be administered, but she died without any change shortly after the above note had been taken.

Body examined forty-three hours and a half after death.—Neck relaxed; the rest of the body rigid; blood generally coagulated, and separated in the heart. Brain healthy, (externally). Heart slightly dilated; about two ounces of clear fluid in the pericardium. Each pleural sac contained about eight ounces of clear fluid. The right pleura was free, the left adherent about the base by old cellular tissue; there were little sub-pleural ecchymoses in the same situation. The left lung was emphysematous in front; behind, it was œdematous, with general congestion. The right lung was œdematous, and congested in the upper lobe, like the left base; the lower lobes were hard, dark, rotten, and congested, giving issue to much fluid, but little air. In the middle of this altered tissue were some pale-coloured lobules containing air, apparently emphysematous. The peritoneum contained about three ounces of clear fluid. The mucous membrane of the stomach was here and there of a dark red colour, rough, and in points, from the effects of the wine, slightly congested; in its cavity lay a dead lumbricus teres. The intestines were generally healthy without, only injected in patches near the lower end of the ileum; within, they were healthy above, the solitary glands enlarged, but Peyer's patches not visible till in the lowest eighteen inches of the ileum. At this point were two patches just noticeable; then followed two or three more, to which some brown fæcal matter adhered, and which were recognisable externally by the red patches already alluded to; and, lastly, just above the ileo-cæcal valve was one ulcer, which had a pale, smooth mem-

brane spread over it, the edge where the ulceration had stopped being visible as a raised ring, and one point being as yet uncovered by this new membrane. The colon was dotted with numerous small round ulcers, one of which, near the cæcum, had perforated all the coats, and exposed the cellular tissue in which the intestine lay. Some had dark livid edges; others were of a more lively colour of injection, and shallower. They extended as far as the rectum. The mesenteric glands were large and dark, especially near the lower end of the ileum and cæcum; one, of the size of one-fifth by one inch, looked like a coagulum; but, on close examination, the glandular tissue could be traced in its substance. Besides, there were several masses about as large as horse-beans—evidently extravasated blood. The spleen was large, dark, and soft. The liver and kidneys pale, but healthy. A cyst existed in the right ovary; the left was healthy.

On comparing the two cases just narrated, it appears that the first period passed with equal safety in both of them: the first case, indeed, suffered most at this time, and the apparent restoration of health was more complete in the second, in whom there was good reason for thinking that the relapse was induced by exposure to cold; the stress of the symptoms being, as in the previous case, on the right lung. For the purposes of such comparison there appears no occasion to recapitulate the earlier details, but the events of the few last days merit a closer investigation, a period when her weak state forbade auscultation, and the treatment was directed simply to save life, if it were possible, regardless, for the present at least, of the local disease; for such is the sum of the treatment during the few anxious days, from the twenty-ninth to the thirty-second, on the simple indication of preventing death by exhaustion. Examined by the result of the post-mortem examination, was it the correct indication?

The brain was found healthy, as far as circumstances would

permit of its being examined, and the state of the faculties till death did not attach any suspicion of disease to this organ; the disease of the intestines was apparently in the act of being removed, a few of the ulcers in the colon being the only parts hereabouts which presented any traces of recent action which might be interpreted as disorganizing; in the lungs there was œdema and congestion, with consolidation of the right base. In this last lay, apparently, the cause of death, judging from the symptoms observed during life, and the amount of obstruction to an important function plainly arising from the organic changes discovered after death; and the following is the order in which they should be placed:—First, the pneumonia; then its effects on the constitution at large resulting next in the œdema; then, lastly, death, with the accompanying congestion of the lungs. Apparently the twenty-ninth day was that on which the active inflammation (using this term comparatively as respects the subsequent symptoms) ceased, and auscultation ceased to be practicable at the same time that its indications ceased to be available.

Were it only in connection with the immediate cause of death, this case would deserve the most attentive consideration. Collapse, which proved fatal in this case, occurred about the same time in the most striking manner in a man whose symptoms had been going on favourably, when he suddenly had a rigor, and sank at once into a state of prostration, from which the most active stimulants failed to rouse him, and so died in a few hours. The same event has been already described in Case X., in a less fearful form, inasmuch as the previous symptoms gave more reason to expect such an occurrence. In the present case this state of collapse was by the most extreme care protracted over a space of four days, but, though more slowly, death came at last. It is satisfactory to turn to cases which encourage one to persist in this same treatment under such circumstances, and shew that even here there is room for hope.

Mary Gilbert, aged 50, a nurse in Lazarus, where, following

the admission of one patient with fever, three other patients, another nurse and the sister, had sickened with fever, of which the latter had died, was warded in Mary on the ninth day of the attack, which had been characterized hitherto by severe headache and sleeplessness. On the eleventh evening she had a profuse perspiration; that night she slept well under the influence of a small dose of laudanum, and the next morning seemed better. She was disturbed no further than was requisite to give her nourishment from time to time, till her dusky appearance attracted notice, when she was found livid and pulseless. For upwards of two days brandy was supplied every three or four minutes, for it was found that the pulse ceased to be perceptible at the wrist if a longer period was allowed to elapse, and enemata of strong beef tea were administered at intervals. Fortunately her stomach tolerated this amount of stimulants; she lay half asleep, just conscious enough to take her food, her intellect clear and herself perfectly aware of her condition, till gradually her pulse rose and remained steady, and the imminent danger passed away. It is worthy of notice, that, weak as she was, and also a large, heavy woman, huge sloughs formed on her back and each of her hips at this period of her illness. The amount of brandy employed daily did not exceed fifteen ounces; a small quantity of ether was employed besides, but it was the constant care, as much as the amount of stimulants, which saved her life: had enough been given at any one time to turn the stomach, probably she would have been dead in a few minutes.

The preceding cases, while illustrating the more severe form of affection of the lungs during fever, have had the further object of shewing to how late a period the danger from this source extends. As far as has yet been seen, the cases have been clearly fever of one kind or another, and the affection of the lungs has been considered as secondary; but it sometimes hap-

pens that patients are admitted in a state of great weakness, suffering from inflammation of the lungs, and referring all their ailments to it. Occasionally, as in the annexed case, the history shews that the pneumonia either occurred from exposure to cold during convalescence from fever, or is really a complication of a relapse of fever. But generally nothing of this kind is clearly ascertained; only the frequent occurrence of pneumonia in patients whose youth and appearance ill agree with the extreme debility displayed by their symptoms inculcates great caution in the employment of any active treatment in such cases, simply for the reason that, whatever the actual disease may be, it is a form that neither requires nor stands active depletion. These remarks do not apply to pneumonia as occurring in middle-aged men of intemperate habits, in whom a very moderate depletion induces delirium tremens,—such cases are as common at one cold season as another,—but to pneumonia occurring during a time when fever is prevalent, and in patients who are not the ordinary subjects of delirium tremens; in whom, indeed, depletion does not induce this condition, but they either die under such circumstances, or else their convalescence is very protracted.

Case XIII.—*Pneumonia the prominent symptom in a relapse of fever.*

Mary Brine, aged 17, admitted Oct. 9th, 1846. Faith back ward. Well made, dark complexion; face dusky and anxious; tongue dry, with a white fur down the sides, and a broad central red streak; pulse 108, small and soft; bowels relaxed, abdomen full and tender; has cough, pain in the right side, and headache, following a rigor six days ago.

History.—Generally healthy; lives by selling things in the streets. Nine weeks ago she was in Christchurch workhouse with fever; was discharged three weeks back, and getting wet

and cold in her weak state, was seized suddenly with her present symptoms, which commenced with a rigor, which first occurred six, and was repeated four days ago: she is drowsy, but quite conscious.

Auscultation.—Right lung behind, small crepitation, with bronchial breathing and dulness on percussion in the lower two-thirds; elsewhere healthy.

Ordered to be cupped to six ounces below the right scapula; to take one grain of chloride of mercury, with a quarter of a grain of opium every six hours, and a draught, with fourteen minims of tincture of squills, thrice a day.

8th day.—She felt relieved by the cupping, now breathes easier, (30), and can lie on either side. Pulse 100, soft, a little fuller; tongue furred and dry; one dark, scanty evacuation, abdomen still tender: she expectorates an adhesive, somewhat tawny mucus.

Auscultation.—Behind "right lung" scattered, largish crepitation, with dull percussion about the base; breathing bronchial, with long expiration about the scapula: left, coarse respiration, with long expiration and occasional sibilus. In front, on the right side, respiration coarse, with pain on percussion.

Ordered, eight leeches beneath the right breast; to continue the medicines, and to take some beef tea.

9th day.—Weak and pale, almost fainting from being raised up for *auscultation*, which detects abundant largish crepitation throughout the right, and to a less degree in the left lung, with generally coarse respiration.

Ordered, four ounces of wine; to continue the draught, and to take one grain of chloride of mercury, without opium, every six hours.

10th day.—She feels much refreshed by the wine, but had no sleep; skin warm and moist; tongue dry and red in the centre, with a moist white fur down the sides; pulse 104, small and soft; three bilious, relaxed motions, abdomen somewhat tender; she still suffers from headache, pain in the chest,

and cough; respirations 34; she expectorates a slightly tawny mucus.

Ordered, to take five grains of the compound mercury and chalk pill thrice a day; continuing the other treatment.

11th day.—She slept well, but vomited once during the night; three dark, relaxed evacuations; abdomen less tender; pulse 110, soft; tongue clean and dry; she still has troublesome cough, with abundant expectoration.

Auscultation.—Bronchial respiration about the right scapula; still extended dulness on percussion.

Ordered, a blister plaster to be applied to the right axillary region; to continue the same treatment.

12th day.—The blister rose well. She looks and expresses herself as much easier; tongue clean and moist; pulse 120, small and soft; bowels open, abdomen not tender; respirations 40.

Ordered to continue.

13th day.—Slept well; pulse 108, small and soft; tongue clean and moist; two dark, bilious evacuations, abdomen hard and tender; mouth just touched by the mercury; her appetite is returning.

Ordered to continue the same treatment, and to take an aromatic draught* immediately.

The notes made from time to time record little more, after this period, than the gradual diminution of the frequency of the pulse, and the return of the feelings of health and strength.

* Confect. Aromat. ʒss.
Aquæ Cinnamomi, ʒjss.

A mixture used with great comfort to the patients, and apparently good effect, in the diarrhœa accompanying fever or disease of internal organs, as directed to the relief of the symptoms pending the operation of such natural or medicinal means as may be calculated for the removal of their cause.

The right lung, as soon as the healing of the blister would allow an examination, was found nearly recovered, only admitting air a little less freely than the left, and she was discharged from the Hospital as convalescent on the thirty-first day.

It would be idle to discuss the question, whether this were a case of fever or no, if the answer led to no further results; but as the treatment had always relation to the possibility of the disease being such, that treatment will repay a little consideration. When she came in, the disease was treated simply as pneumonia occurring in a very weakly person, of which form of disease the preceding winter had supplied many instances. But the debility was so extreme, the pain in her abdomen so constant, and the apparent irritation produced by the calomel, when given unguarded by opium, so great, that the suspicion which had prevailed from the beginning, of the pneumonia being secondary, became the recognised view of the case. But how could this modify the treatment? Simply thus:—The drowsiness and constitutional disturbance were not all owing to hindrance of the functions of, and the presence of disease in the lungs, and could not therefore be rightly treated merely by attempts to repair that local disease. The abdominal affection was probably, though less obvious, equally dangerous to life, and was not therefore to be neglected, for the purpose of concentrating all the treatment on what was possibly only half of the disease, and which, indeed, might get well without any assistance from remedies addressed specially to it. But did these considerations much matter, when they led only to the substitution of fifteen grains of compound mercury and chalk pill for four grains of chloride of mercury daily? Possibly not, as the case turned out; for the fact of so slight a substitution having been sufficient, arose, may be, from the suspicion having been constantly present, and thus having kept awake the attention to notice the earliest disagreement of the plan of treatment first adopted.

In nearly all the cases as yet narrated, the stress of the disease has been most evident during the relapse, falling chiefly on the lungs, as far as the symptoms observed during life were concerned. In the case next subjoined the stress of the fever occurred during the first or only attack, the lungs being chiefly affected.

Case XIV.—*Fever, with mottled rash; affection of the lungs; recovery.*

Mary Ann Barham, aged 19, admitted April 1st, 1846. Faith back ward. Face and eyes flushed; skin hot and dry, mottled with a rash which is not elevated and fades on pressure; pulse 132, readily influenced by posture; bowels much relaxed from medicine, abdomen full, tolerant; respirations 28, laboured; has cough, and pain in the abdomen of three days' duration.

History.—She is rather deaf, and not collected, but it appears from what she says, that she is a servant; always healthy till a fortnight ago, when she felt generally unwell, and had pains in the throat and limbs; her sleep was broken, and her appetite impaired; but all these symptoms were much aggravated after a rigor three days back. The rigor was followed by heat, and she feels hot now. Her fauces are rather vascular.

Auscultation.—Rhonchus and sibilus with good resonance on percussion posteriorly throughout.

Ordered to be cupped to six ounces, below the scapulæ; to take five grains of compound mercury and chalk pill thrice a day, and a saline draught every four hours.

5th day.—No sleep; delirious during the night. She vomited once this morning, and passed an evacuation unconsciously. Pulse 144, small and soft; respirations 40, irregular; tongue moist, dusky, and coated with a thick fur.

Ordered to continue the medicines; to take four ounces of wine, and two pounds of beef, for tea, daily.

6th day.—Quiet during the night. Tongue clean and moist; pulse 132, small and soft; one pale, solid evacuation; respirations 40, still irregular: she has a little pain in her abdomen, and more severe in her head and limbs.

Ordered to take two grains and a half of mercury with chalk thrice a day, instead of the other pill: continue the rest.

7th day.—Slept quietly and well; lies on her side, with frequent wheezing respiration, complaining of cold. Tongue clean, chapped, and dry in the centre; pulse 120, small and soft; skin hot and dry, mottling still distinct; two healthy, solid evacuations from the bowels.

Ordered a saline draught with camphor mixture, and ten minims of compound spirits of sulphuric ether, every four hours; to continue the rest of the treatment except the draught, and to have a blister plaster applied to the chest.

8th day.—Good, quiet sleep. The blister has risen well. Skin hot, slightly moist; two dark-green semi-fluid evacuations; pulse 132, sharp, wtth more power; she has difficult cough, with somewhat glairy expectoration.

Ordered to continue as before, but to change the compound spirits of sulphuric ether for twenty minims of spirits of nitric ether.

9th day.—Little sleep, owing to her cough; no delirium. Five liquid ochry evacuations; abdomen tender; pulse 132—144, with less power, irregular; tongue clean and moist.

Ordered to substitute five grains of compound mercury and chalk pill, thrice a day, for the present pill, and to have a blister plaster applied to the abdomen; to continue the rest.

10th day.—The blister rose well. She slept well; is now lying low down in the bed, but quite sensible; the breathing (42) scarcely more hurried than before; cough still troublesome, with frequent mucous expectoration; bowels not open;

tongue moist, with a dark streak down the dorsum; pulse 120, soft; surface of the body warmer.

Ordered to continue.

11th day.—Always sleeping. Tongue moist, with a thick, creamy fur; pulse 120, small and soft; skin warm and moist; one dark, loose evacuation from the bowels; she is restless when disturbed, and complains much of cough.

Ordered a saline draught, with forty minims of oxymel of squill and two minims of tincture of opium, every six hours; to continue the wine and beef tea; omit the rest.

12th day.—Slept well; lies easily in bed. Expectoration free; pulse 120, small and soft, soon hurried; tongue with a moist, white fur.

Ordered to add twenty minims of spirits of nitric ether to her draught.

13th day.—Slept well. Pulse 132, small and soft; tongue moist and furred; skin warm, with copious alkaline perspiration.

The note of the sixteenth day speaks of vomiting, with slight diarrhœa,—explained, perhaps, by the note of an improved appetite on the previous day,—the only incident requiring notice during the rapid convalescence which followed that return of appetite.

It will be seen that in this as well as the last case the number of respirations became accelerated as the patient got better. Considering the disease simply as a pulmonary affection in either case, it would have taken some time to assure oneself that with this symptom the patient really was getting better; but considering the pulmonary affections as only part of the disease, it seemed more rational to look for the cause of the hurried breathing in the returning consciousness, which now made the patient liable to be excited by the visit, which before she had hardly taken notice of.

The note of the tenth day is deserving of attention, as recording the investigation into the meaning of one of those symptoms, which are more interesting when supplying the motive for that investigation, than any subsequent description can render them. The point seems simple enough: the patient lay low in the bed; but, on a careful inquiry, there did not appear any reason for her doing so, and therefore this circumstance gave no indication for altering the treatment. Nor should a circumstance so trivial in itself do so. Perhaps, to those not conversant with fever as seen in the London hospitals, it may seem too trifling to deserve mention; and, indeed, in this case it probably meant nothing; but this particular posture, being generally an indication of the failure of the bodily strength, too often denotes failure of the powers of life for it ever to be passed lightly over in a case where death by exhaustion is the danger most to be apprehended.

The next case, according to the classification here adopted, should more properly be placed in the ensuing chapter, but it stands here best in connection with the two preceding, although the symptoms which they illustrate in common, namely, diarrhœa and vomiting, belong more strictly to the subject of the abdominal complications of fever.

Case XV. — *Fever, with mottled rash; diarrhœa and vomiting; recovery.*

Mary Stevens, aged 38, admitted April 17, 1846. Mary back ward. Of a spare but strong make; face flushed and anxious; tongue moist, covered with a thick yellow fur; bowels confined; pulse 84, small, and soft: skin warm and moist, without rash; has pain in the head and limbs, with nausea and watchfulness all of five days' duration.

History.—A nurse in Mary ward: was always healthy before an attack of hæmatemesis nine years ago: since then, she has had frequent recurrence of the catamenia at fortnightly inter-

vals. Three weeks ago, while laying out a patient who died in this ward of fever, she had nausea, and has had constant loss of appetite since that time. The present symptoms came on suddenly five days ago with a rigor followed by vomiting. Her bowels have been obstinately confined, for which she has taken active purgative medicine, and she had yesterday pain in the epigastrium, which was relieved by the application of leeches. She is quite coherent at present, but delirious at night.

Ordered, a saline draught, with a drachm of sulphate of magnesia, every eight hours.

7th day.—Little sleep; wandering at night. She vomited this morning. Five relaxed motions, abdomen flat and soft, not tender. She has no pain in the head; tongue and pulse as yesterday.

Ordered to continue the saline; to take four ounces of wine and a pound of beef, for tea, daily.

8th day.—No sleep; delirious, getting out of bed during the night; tongue covered with a thick, moist, yellow fur; bowels very much relaxed, with frequent vomiting; skin soft, slightly moist, with a distinct mottled rash on the forearms, less evident on the chest; she feels cold, but is free from pain, and quite coherent.

Ordered an effervescing draught thrice daily; to continue the wine and beef tea.

9th day.—Little sleep; restless and wandering during the night, now moaning and anxious; bowels profusely relaxed, with still frequent vomiting; tongue moist, tremulous, cleaner; pulse 96 and upwards, like a thread, soft; skin, cool, dry and harsh, with a more extended, very vivid, rash. She has pain in the epigastrium and right iliac fossa.

Ordered, compound mercury and chalk pill, five grains, thrice a day; to continue the wine and beef tea.

10th day.—Good sleep; she has nausea, but no vomiting; the diarrhœa (judging from the note) has apparently ceased; skin warm and dry; rash less vivid, but visible on the face,

papular; tongue dry and chapped, with a brown fur; pulse 96, small and soft.

Ordered to continue.

11th day.—Rambling and starting in her sleep; pulse 108, small and soft; tongue drier. Several dark evacuations from the bowels, and great tenderness of the right iliac fossa. She feels cold and hungry.

Ordered to continue.

12th day.—Quiet sleep; tongue with a clammy fur; bowels once open; pulse 108, small and soft; skin hot, a little moist; rash less distinct. She has pain on pressure of the hypogastrium, and is rather deaf.

Ordered to continue.

13th day.—Good sleep; tongue with a moist chapped fur; pulse 96, small and soft; bowels still slightly relaxed, but without pain.

Ordered to continue; to have a blister plaster applied to the abdomen.

14th day.—Noisy and restless during the night; eight liquid evacuations; tongue dry and chapped; pulse 120, small and soft; skin moist; the rash almost faded. She lies on her back, with an anxious face and flushed eyes, irritable and incoherent, complaining of pain in the chest and head.

Ordered to continue the wine and beef-tea; to take an aromatic draught thrice a day.

15th day.—Bowels less relaxed; pulse 108, small and soft; otherwise she is as yesterday, but free from pain.

Ordered to continue: the wine to be increased to six ounces.

16th day.—She slept well; she is sensible when spoken to, but when left to herself she lies muttering incoherently; bowels not open since the last note.

Ordered to continue.

17th day.—Very heavy sleep all yesterday evening, and during part of the night; tongue dry, glazed, and tremulous; pulse 96, small and soft; bowels relaxed; the evacuations passed

unconsciously: abdomen soft and tender. She is very anxious and restless, asking for food, but unable to eat it.

Ordered to continue the wine and beef-tea; to take ten minims of dilute hydrochloric acid thrice a day.

The next day her pulse had risen in power. On the following it is noted:—Her tongue is clean and moist; pulse 84, small and soft; she has had two natural evacuations from the bowels: the rash has quite disappeared.

20th day.—She does little but sleep; tongue clean, pale, and dry; pulse 96, small and soft.

There is nothing to remark in the gradual return of the feelings and appearance of health which the few remaining notes record.

The common point of resemblance which these cases present, in the occurrence of vomiting, almost disappears on a closer examination. It is true that they had each this symptom, but in each it apparently depended on a different cause. In Case XIV. some indiscretion in diet appeared to have irritated the stomach, but of the occurrence in Case XIII. there appeared no satisfactory explanation; it is not, however, unusual for vomiting to occur once or twice during the progress of fever, without any obvious reason. In Case XV. vomiting occurred at two distinct periods: at the first as an initiatory symptom, probably the rejection by the stomach of the food which it was deprived of the power of digesting—a symptom observable in about one-sixth of the patients, and of an entirely salutary tendency; at the second period vomiting did not take place once only, as if for the relief of the stomach, but repeatedly, and accompanied by profuse purging. There are few more important complications than this to be met with in the progress of fever, when the stomach rejects all the means employed for the relief of its own symptoms as well as for that of the diarrhœa, which is exhausting the patient positively, as much as the vomiting does negatively, by preventing any nutrition of the body. Nor does

there appear to be any way in which this vomiting has always been successfully treated: a red, and especially a glazy tongue, with pain in the epigastrium on pressure, give great encouragement to the application of a few leeches or a small blister plaster to the pit of the stomach, and under such circumstances this treatment is generally successful. The coincidence of diarrhœa would make one look for an organic cause, whether within or without the stomach, and so exclude mere sedatives, calculated only to allay the symptoms of vomiting, from the treatment. Apart from any thing else which the circumstances of any particular case may suggest, the plan which seems to have generally the best claims to attention, and which in the present case was successful, is to obtain perfect rest for the stomach, as far as is consistent with the safety of the patient, by withholding nourishment for a short time, and to address our remedies to the diarrhœa, externally, if it may be so, or, if internally, in the smallest and least nauseating forms. And the same, as far as concerns the stomach, equally applies to the treatment of vomiting as a symptom of affection of the brain in fever, which, however violent, we must recollect is only a symptom.

But with regard to the diarrhœa which accompanied the vomiting, there is every reason to think that it was caused by the use of sulphate of magnesia, in the early part of the case. Calling diseases by their generic names, it may seem somewhat contradictory if, turning to Case XIII., we there find the suspicion that the disease was fever was constantly sought to be confirmed in the loose state of the bowels, while in this case purgatives were prescribed from the outset. But looking beyond the name, and inferring from the symptoms of the cases before us, and not from the morbid anatomy of other cases, the discordance disappears. A red streak down the tongue, with a tender abdomen, would make any one very cautious in using purgative medicine, even did other symptoms demand it; and were the case named "fever," the expletive would be, "with affection of the bowels." But let the tongue be covered with a moist yellow fur, and

there be no pain in the bowels, with a soft pulse of 84, and, above all, no irritation be traced in the effect of active purgatives previously given,—and now there are other indications for treatment than existed in the former case. This form of fever was common in the winter of 1840-41. On such indications a little purgative medicine used to be given, cautiously, (for this was not the only form of fever), and its effects watched till a fair dose of purgative medicine could be borne, and a healthy evacuation was procured, and from that full action of the purgative convalescence apparently dated. Or the purgative might be given in small frequent doses, as in the present case, in which, however, the plan of treatment which was prescribed from the experience of other cases, as well as from its own earlier indications, its own later indications clearly forbade to be continued; for fever is to be treated by its own indications from day to day, and as little is each case to be treated throughout by the rule of the class in which its earlier symptoms may have placed it, as is one general undeviating plan of treatment to be laid down for fever for each year.

CHAPTER V.

AFFECTION OF THE BOWELS IN FEVER.—ANALOGOUS TO OTHER COMPLICATIONS.—SYMPATHETIC AFFECTION OF THE BRAIN.—ULCERATION OF THE BOWELS, DIFFERENT FORMS OF.—HÆMORRHAGE FROM THE BOWELS.

The phrase of "Fever with affection of the bowels," may appear altogether objectionable to some, to whom the fact of there being no affection of the bowels is at once conclusive against the individual case being admissible into the same class with those where the bowels are found to be affected, whatever the symptoms or apparent origin of the disease might have led us to think during the life of the patient. This is one view of the question, taken by some of the highest authorities, directly opposed to the notion more commonly received in England, which is, that a case of fever accompanied by affection of the bowels differs from another where there is no such affection, cæteris paribus, no more than one accompanied by pneumonia differs from another where this complication is absent; that every case (making the proper corrections for phthisis) is to be considered as typhus fever where the peculiar changes of the Peyer's solitary and aggregated glands are present, but not every case where these changes are absent is on that account to be excluded from this category, and that the Fièvre Typhoïde is only the form of typhus most common at Paris, not a distinct disease, either there or in London. There is fever and something else—here an affection of the lungs may be, there of the bowels—all alike complications or extraneous to the essential nature of fever, and to be rated, not according to the more or less close connection which they may be presumed to have with this abstract essential nature, but by their power to destroy life.

Interesting as this question is, it has no great reference to practice; for the presence or absence of ulceration can only be certainly determined after death: as far as any observation of symptoms during life goes, it is quite impossible to distinguish invariably between the two classes; the distinction is purely anatomical. The symptoms usually connected with affection of the bowels, such as pain and diarrhœa, and even hæmorrhage, may occur, and yet dissection show the mucous membrane of the intestines to be quite healthy; and again, though more rarely, ulceration may go on to a considerable extent without any symptoms, undiscovered, unless perforation takes place, till death. But amid this uncertainty the rule for practice is straightforward; we lean on the symptoms for indications of treatment, and, inferring from these symptoms, speak of one patient as having had affection of the bowels, and another not: but the indications are pursued, and the expressions are used, in the full knowledge that they refer to the symptoms of organic disease, and not to the organic changes themselves, of whose existence scarcely any thing short of dissection can assure us. And how could it be otherwise? The knowledge of the local action of remedies must be very much greater than it is at present, could we, even if we had demonstrative evidence of its existence during life, direct our treatment to ulceration of the bowels by any other channel than that opened to us by its present symptoms: a disease which has no symptoms, is, to human agency, an incurable disease.

Then the matter stands thus. After death from fever, there may or not be found ulceration of the bowels, and during life the symptoms of this lesion may or not be present; but the two divisions are not exactly commensurate in each case: there may be ulceration without any symptoms, and symptoms may exist where there is no ulceration. Still, the symptoms must be treated according to their rational value; for though there be not ulceration now, yet the exceeding frequency with which this lesion does occur should warn us against letting slip the oppor-

tunity of treating as a tendency only what we may soon have to add to the list of things to get well of themselves when the fever is past, another item to protract the period of convalescence. To state that the particular lesions of the bowels occurring during fever are the cause of the aggregate of symptoms called fever, is quite unwarranted by the experience of English physicians; but their importance is scarcely less than if they were so. The intestines are in fever what the heart is in acute rheumatism; where the symptoms, besides the examination which they would require in ordinary disease, have to be examined for reasons peculiar to the present disease.

Affection of the nervous system has been already described, as referable to what, in the absence of more exact knowledge, is called the morbid poison of fever, and to changes—which definite symptoms lead us to expect, rather than anatomy allows us to quote—in the brain itself. There is another class of cases, illustrative moreover of this analogy between the affection of the heart in rheumatism and that of the bowels in fever, where the symptoms during life, as well as the examination of the body after death, point so clearly to abdominal disease, that it seems just to consider the nervous symptoms as secondary to the abdominal lesions. Of this sympathy the case next following was a most striking illustration, though thus far inapplicable to the present purpose, in that the sympathy was rather with inflammation of the peritoneum than with ulceration of the bowels. My own interpretation of the symptoms at the time of the dissection was, that the patient had ulceration going on to perforation of the bowels consecutive to fever; that he had in some degree recovered from the peritoneal inflammation ensuing hereupon; but that a second, or, more correctly speaking, a recrudescence of the original disease proved fatal, the abdominal symptoms being now entirely masked by the intense violence of the sympathy of the brain with the suffering part. The imperfect nature of the information obtainable as to the history of the case renders doubtful the accuracy of any inter-

pretation, (for there were other different ones) which goes beyond the symptoms witnessed during his stay in the Hospital, and the changes discovered after death; but for the comparison of these particulars this instructive case deserves the closest attention. Upon repeated careful consideration of it, it has always appeared that even had the information which dissection alone gave of the state of the abdominal cavity been obtained during life, it would have modified the treatment only thus far, namely, by suggesting the application of leeches to the abdomen, instead of, or perhaps in addition to, cupping from the temples: of the equally fatal termination of the case, under any method of treatment, there is little doubt. It is particularly observable how the delirium was not removed by long-continued sound sleep.

CASE XVI.—*Peritonitis, probably originating in perforation of the ileum by a typhus ulcer; violent delirium, masking the symptoms of abdominal disease; death; dissection.*

William Brinkworth, aged 32, admitted Dec. 4, 1845. Face flushed; skin warm and moist; tongue moist, with a thick white fur on the dorsum, tip and edges red; pulse 120, feeble; bowels much relaxed; urine very scanty, almost suppressed; lies on his back, fastened down in a strait waistcoat on account of his violence, tearing his sleeves with his teeth, talking incoherently, but sometimes giving a correct answer, exclaiming that he is on fire in his head and stomach, that he sees the smoke rising, and that the sea is roaring in his ears. His abdomen, though hot, is tolerant of pressure.

History.—A musician, married, temperate, caught a cold a month ago, commencing with a rigor followed by heat; at the same time there came on pain in the throat, with difficulty of swallowing. A fortnight ago diarrhœa set in, which has continued more or less, with black fœtid evacuations. Eleven days ago he was delirious for four hours, from which time he remained rational till three this morning, when he again became

violently delirious as now. He slept nearly all yesterday; he has had some medical treatment.

Ordered to have his head shaved, and to apply cold lotion to it; to be cupped from the temples to ten ounces; to rub in a drachm of strong mercurial ointment every six hours, and to take two grains of calomel with one-sixth of a grain of tartar-emetic every four hours.

Dec. 5.—He bore the cupping well. Restless and noisy during the night, but quieter towards morning. Face anxious; skin perspiring; lips dry; tongue covered on the dorsum with a moist fur, tip and edges clean; pulse 92, sharp; bowels open three times, liquid fæcal evacuations; urine passed freely. The head is much cooler. He wanders, but answers questions correctly.

Continue.

Dec. 6.—No sleep; he lay quiet, but was delirious during the night. Face natural, but with wandering glassy eyes; head cool; tongue clean, inclined to dry, lips dry, gums vascular; pulse 120, small, wiry; four liquid, slimy, greenish motions. He answers questions correctly.

Ordered to continue the use of the mercurial ointment, leaving off the pill; to take mercury and chalk, gr. ijss. every six hours, and an aromatic draught immediately.

Dec. 7.—He was noisy in the course of the evening, but fell asleep towards 10 P.M. and slept till 3 A.M.; since then he has again been noisy, but answers questions correctly. Four evacuations like those of yesterday, passed in bed; tongue dry in the centre, red and moist at edges; pulse 120, small, soft, tremulous.

Ordered to leave off the pills, to continue the other treatment.

Dec. 8.—He was quiet during the night, but had little sleep. Tongue moist, with a white fur on the dorsum; gums vascular and sore; pulse 120, feeble; bowels not open. Complains of weakness.

Ordered to use the ointment only twice a day, to take a saline draught with camphor mixture every four hours.

Dec. 9.—He had no sleep, but he is much more intelligent,

and his expression more natural; bowels open three times from a dose of castor oil, the evacuations mixed with blood; abdomen soft, painful on pressure.

Continue.

Dec. 10.—Good sleep. Three healthy bilious evacuations; gums not so vascular; intellect not quite so clear as yesterday.

Ordered to continue the ointment, to take twenty minims of aromatic spirits of ammonia out of camphor mixture, every four hours, and a pound of beef, for tea, daily.

Dec. 11.—He lies perfectly quiet, generally asleep; he is irritable, and moans when asked questions, hiding his face in the pillow; but he will put out his tongue. Surface of the body cool; face pale; pulse 126, feeble. He is much emaciated, and apparently quite exhausted.

Ordered to continue.

Dec. 12.—He had no sleep, but lay quiet during the night. Skin warm and moist; tongue moist, with a thin fur; pulse 120, with rather more power; urine free. One healthy evacuation, passed, as his urine, in bed; some pain in the abdomen, increased by coughing.

Ordered to continue.

Dec. 13.—No sleep, from pains coming on at intervals in his abdomen, which is tympanitic and painful on pressure; pulse 112, with more power; tongue clean and moist; gums not sore; urine free.

Ordered to take an aromatic draught, with half a drachm of aromatic spirits of ammonia, every four hours.

Dec. 14.—The spasmodic pains in the abdomen have been constantly recurring. When they seize him, he suddenly cries out for pain, and lays hold violently on anything near him. Bowels not open, abdomen tympanitic, generally painful on pressure; pulse 150, like a thread; tongue clean and moist. He is quite sensible, and begs for some medicine to allay the pain in the abdomen, and the vomiting from which he now suffers.

Ordered to take three drachms of castor oil with ten minims of tincture of opium immediately; to continue the draught.

He had no more return of pain, but he continued vomiting a dark matter like what was found hanging to the coats of the stomach after death; retained his senses to the last, and sank exhausted, 6 A.M., Dec. 15.

Body examined eight hours after death.—Neck rigid, elbows partially so; body still warm; blood in the heart coagulated. There was some clear fluid in the meshes of the pia mater and in the cavity of the arachnoid, but the convolutions were not in the least compressed, and there was no increased vascularity on the surface of the brain; the substance of this organ was also perfectly healthy. The right pleura was universally firmly adherent, the left free; the lungs were healthy. The heart displayed a few little granules of fibrin on the free edge of the mitral valve, which was apparently quite efficient: the other valves were perfectly healthy.

The peritoneal cavity was quite obliterated, except beneath the diaphragm; the upper surface of the liver, the stomach, and the spleen in its greatest extent, remaining free. All the rest of the cavity was obliterated by adhesions among the intestines themselves, and of these to the walls of the abdomen. These adhesions consisted of soft, curdy fibrin, of a yellow colour and moderate consistency, but firmer about the hypogastrium and in either lumbar fossa. There was no fluid effusion of any kind. The intestines appeared enormously distended with gas, particularly the transverse colon and a part of the unusually long sigmoid flexure, which extended across the region usually occupied by the bladder.

The stomach, in its great curvature, except at the cardiac end, was thickly set with numerous foramina of about the size of a pin's head, which became evident on scraping off the black shreds and the thick mucus with which the whole stomach hereabouts was coated. About the part where these foramina were seen, the mucous membrane was thickened and curdled

(to use a more expressive term than the French word *mamelonnée*), but the foramina did not evidently coincide with the centre of any of the little tufts thus constituted. This change of structure gradually faded away into the healthy mucous membrane which existed elsewhere. The small intestines were generally healthy, except in about the lower two feet of the ileum, where the mucous membrane appeared to be dusted over with small sharp points, which were largest and most numerous on the Peyer's patches. Some of these patches were distinguished thus only; in others there existed a deep black shade, and the mucous membrane was remarkably smooth to a corresponding extent. In others, again, a depression in the middle of this black shade indicated an ulcer in the process of healing; in several ulcers, however, no attempt at reparation had commenced, but the mucous membrane had been removed, as if with a punch, to a greater or less extent, leaving an elliptic excavation, with sharp square edges; more than one of these ulcers being seated in the same patch. Just about the cæcum the ulcers were smaller, more numerous, and rounder, and at about eighteen inches above the ileo-cæcal valve one of them had perforated all the coats of the intestines; but as the general adhesions were particularly well marked at that point, it did not now communicate with the cavity of the peritoneum at all. The mesenteric glands were small and dark-coloured. The large intestines had dark streaks extending along some of their folds. The liver had lost in some degree its normal lobular texture, and looked pale and homogeneous. The spleen was small, firm, adherent in a single point to surrounding parts. The kidneys were small, pale, healthy; a small cyst or two in the right. The pancreas was apparently healthy.

Apart from the purpose for which this case is brought forward, dissection presents one other point on which it will be worth while to dwell, a morbid appearance which, from the time of Morgagni (Epist. XXIX. § 21) downwards, has perplexed pathologists; namely, the follicular or hæmorrhagic ulceration

of the stomach. This appearance is to be observed more or less in about one-twentieth of patients dying of all diseases, but most commonly in connection with disease of the heart, fever, and phthisis. A little vomiting of bloody mucus before death may suggest its existence at times; but generally there are absolutely no symptoms to lead to any expectation of finding it after death. But that such is not always the case, the following, among other cases, may serve to show:—

Ellen Mitchell, aged 57, was brought into St. Bartholomew's Hospital, on Dec. 27, 1847, livid, anxious, constantly vomiting glairy mucus with black streaks, incoherent and pulseless; and so died in a few hours. Her friends were too poor to bury her; she was taken to the dissecting-rooms, and after a week an opportunity was obtained of examining the ileum and stomach. The former was found congested, and the Peyer's glands slightly thickened; the stomach contained about a pint of fluid, like that which she had vomited; the mucous membrane was congested more intensely in some parts, and in these were a great number of small, follicular ulcers. At the cardiac end was the cicatrix of a large ulcer, the more distinctly marked by the circumstance of the paint-injection not having penetrated freely into the coats of the stomach to that extent, the small vessels elsewhere being very minutely injected. There was no lesion of the œsophagus.

There appeared, on the most careful inquiry, no reason for thinking that she had taken poison: she was a quiet, well-meaning woman, living in a house where three of her relatives had erysipelas of great severity. Her symptoms set in on Dec. 24: after taking a cup of tea with her sister, on an empty stomach, she had vomiting, purging, delirium; and death came on Dec. 27. I would not urge this as an illustration of a lesion at all connected with fever, though it is found with that more frequently than with most other diseases, and its occurrence in a house where three people had erysipelas, of which one had died, might favour the hypothesis, but as

one of the many warnings which an anatomist's note-book supplies, to tell us how cautious we should be in stating that this or that lesion of the mucous membrane of the stomach has any certain connection with this or that symptom. The importance of the subject, in a medico-legal point of view, is sufficient apology for this seeming digression.

In the case next to be detailed, the symptoms, though sufficiently striking, claim to be called nervous in hardly a higher sense than the term is used to designate hysteria.

CASE XVII.—*Fever, with nervous symptoms; the stress of the disease on the abdomen; recovery.*

Frances Gray, aged 22, admitted May 11, 1846. Mary back ward. Small stature; dark complexion; face anxious; tongue coated; skin hot and dry, without any rash; bowels much relaxed; has thirst, anorexia, delirium, and watchfulness, with some cough, of two days' duration.

History.—A servant, generally healthy, but the catamenia irregular; has been ailing for a fortnight, and during the last week all her symptoms have been aggravated, which she attributes to having put on damp clothes; but she had nothing definite to complain of till two days ago, when she was suddenly seized with diarrhœa, accompanied by pains in the loins and abdomen, and soon followed by delirium, with some degree of stupor.

Ordered to have eight leeches applied to the abdomen; to take five grains of compound mercury and chalk pill every six hours.

4th day.—The leeches drew freely, and relieved the pain in her abdomen. The diarrhœa was suspended for a while, but has returned. Tongue clean and dry; pulse 120, small and soft. She had passed no urine since admission. She had some hours' sleep last night, and now is quite coherent, though her memory seems deficient.

Ordered to continue.

5th day.—Little sleep; face dull; tongue clean and dry; pulse 120, small and soft; bowels still much relaxed; urine scanty, passed with difficulty; skin warm and perspiring, still without rash; she has a little cough, with some pain on the right side of her chest.

Ordered to continue the pills; to take four ounces of wine, and one pound of beef, for tea, daily; to have a blister-plaster applied to the abdomen, and to be cupped to three ounces on the right side of her chest.

6th day.—Slept well. She complains now of no pain, only of extreme thirst; tongue clean, dry; one liquid, light-coloured evacuation; urine passed freely. She lies in the oddest and most constrained positions, crying, and calling out hysterically.

Ordered to continue.

7th day.—She was restless in the early part of the night, but had some good sleep subsequently; bowels not open, abdomen full, tolerant of pressure; tongue clean and moist, but sordes collecting about the teeth; pulse 120, small and soft; she still cries and moans, and, however placed, always assumes some constrained posture.

Ordered to take ten minims of dilute hydrochloric acid thrice a day.

8th day.—She had little sleep, constantly awaking with thirst during the night; tongue clean, dry, and chapped; bowels once open, the motion a little relaxed; skin dry and harsh, still without rash. She lies on her back, high up in the bed, with frequent (36) noisy respirations, complaining of rising in the throat, with occasional flushing of the face, and some pain in her right side.

Ordered to continue: to take two grains of mercury with chalk, and ten minims of tincture of opium, to-night; to have a blister plaster applied to her right side.

9th day.—Good sleep; less pain in her side; tongue dry, clean; pulse 120, small and soft; one loose evacuation, abdomen full, tolerant of pressure.

Ordered to take five grains of mercury with chalk to-night, and to continue.

10th day.—Some sleep; tongue paler, rather moist, a thin perforated fur running along the edges; pulse 108, small and soft; bowels much relaxed, the evacuations passed in bed; she had a little retching this morning; her face is no longer flushed; and she lies in an easy posture.

Ordered to take ten minims of dilute hydrochloric acid, with four minims of tincture of opium, thrice a day.

11th day.—Slept well; is free from all pain, and lies easily in bed; tongue moist, with a thin pasty fur, the fissures still remaining; pulse 124, small, soft; skin warm, dry, and harsh; two or three natural evacuations passed in bed; abdomen full, rather tender.

Ordered to discontinue the hydrochloric acid, to reduce the daily amount of wine, and to take six grains of compound mercury and chalk pill to-night.

12th day.—She lies dull and heavy, complaining of thirst; tongue clean, rather moist; bowels still relaxed, the motions passed in bed, abdomen full and tolerant; skin hot, harsh and dry; pulse 114, small and soft.

Ordered to take five grains of compound ipecacuanha powder thrice a day, and to continue.

The next day her bowels still continued to be relaxed. On the 14th, she had passed the previous night with little sleep, delirious; tongue moister; pulse 120, small and soft; bowels less relaxed, the motions still passed unconsciously; skin cool, harsh, slightly moist.

15th day.—Little sleep, wandering at night; face flushed; skin warm and soft, profusely perspiring, covered with abundant miliary rash; pulse 120, small and soft; bowels relaxed after taking beef-tea; the motions still passed unconsciously. She is more cheerful, more sensible, and her appearance in every way improved.

17th day.—Sleep still disturbed; pulse 108, small and soft;

tongue clean and moist; bowels regularly open, the evacuations natural in character, and not passed in bed; skin moist; the miliary vesicles have all disappeared. She is less thirsty, has some return of appetite, and complains merely of a little cough.

There only remains to mention, during her rapid convalescence, slight desquamation on the 20th day, and on the 26th day, frequent vomiting of a clear fluid, accompanied by some return of the hysterical symptoms which she had exhibited during the early part of the fever. On the 29th, she had several alternations of heat and cold, for which she was put on the daily use of quinine; and no other note occurs till her discharge, towards the latter end of June.

The simple coincidence of hysteria with fever may seem to have small claims on our attention; less, indeed, than it would attract under the name of nervous excitement which is illustrated in the fatal case next following. The symptoms of hysteria are in most cases merged in those of intercurrent acute disease, and though they may appear as modifying or aggravating those symptoms, yet they rarely are recognisable, as in this case, simply as hysteria, the cause of which is to be sought in the mental impression produced by the acute disease itself. On the treatment of hysteria it is not here the place to remark. Frivolous as the subject may seem, it is one which will at times require the best skill in the management, both of mental and bodily diseases, on the part of the physician. But, in connection with the last case, there are two facts which should never be lost sight of. First, the possibility, in any acute disease, of its symptoms being much modified by this excitable nervous condition; or, what is more important, as less likely to be observed, the continuance, in an hysterical form, of those symptoms which have hitherto required active depletory measures. The second fact is, the frequent dependence of the above order of symptoms on serious organic disease in an early stage. The practice of a large Hospital, where the same patient applies

from time to time,—especially hysterical patients, who apply at the earliest period for the relief of their ailments, real or fancied,—supplies abundant evidence of the truth of this remark.

CASE XVIII.—*Fever, with nervous symptoms; death on the eleventh day; ulceration of the bowels.*

William Richards, aged 24, admitted July 1st, 1846. Matthew front ward. A fine, strong, healthy-looking man. Tongue thickly furred, and coated with clammy mucus; pulse 108, jerking; skin warm, slightly moist; bowels once open this morning. He lies restlessly on his side, till roused to give an answer, when he speaks in a thick unintelligible voice, and becomes flushed in the face and very excited, talking about a fall that he had three days ago.

History.—It is learned from his friends that he is a carpenter, that he has been very intemperate, and that the fall spoken of occurred four years ago. He has had diarrhœa for a week, and vertigo, with more or less of his present symptoms, for the last three days.

9th day.—He slept well; pulse 104, small, soft, jerking; tongue drier, with a thinner and less clammy fur; four light yellow-coloured, relaxed evacuations; skin warm and perspiring, without rash; respirations 40, irregular. He has some pain in the head; his articulation is still difficult. He says that he cannot breathe for pain at the pit of the stomach.

10th day.—No sleep; he is quite unconscious, and all his evacuations pass under him in bed; his face profusely perspiring, his hand trembling; tongue with a clammy fur; pulse 180, small and soft.

11th day.—Sleepless; moaning all night, attempting to talk; bowels much relaxed. He lay thus till 9 A.M., when he turned pale, and quietly died.

Body examined, seven hours after death.—Limbs all very rigid; blood generally fluid; no rash, and no marked sugilla-

tions on the surface of the body. The brain was perfectly firm and healthy; there was a little reddish fluid in the lateral ventricles, and much fluid blood escaped on the division of the vessels at the base. The lungs were healthy, saving a little congestion posteriorly. The stomach contained some dark olive-green fluid, with a few sepia-coloured shreds; there was a little dotted injection about its cardiac end, and a few small follicular ulcers, from which the dark shreds hung. The small intestines were healthy, except the lower two feet, or more, of the ileum. In this space, going downwards, first appeared a number of pale elevations, such as the presence of a flattened mustard-seed beneath the mucous membrane might give rise to;—then, the tops of these presented a vascular ring, with a pale centre;—and then, a little way further on, there was distinct evidence of softening in this central spot. And now, there appeared broad, dusky-red patches, dotted with little follicular openings, occupying the exact limits of Peyer's patches, generally thickened, with an elevated fungous rim running round the patch. The mucous membrane, a little lower down, was so intensely injected that, for a short distance, the thick rim was the only means of discerning the patches, till, further on, a crack appeared in one or two of these, displaying a slough beneath the yet living mucous membrane. The mucous membrane was now much thickened, so as to contract the calibre of the bowel, its surface uneven, the deep injection relieved occasionally by a white crack, and just on the ileo-cæcal valve a large piece of the mucous membrane itself had separated, leaving a rough, granular surface exposed. This was the extreme degree of the lesion; next, in the colon, came enlarged solitary glands, with vascular rings and white tips; and these were followed by simply enlarged glands, without any injection, less numerous and the changes less marked till they died away in the descending colon. The intestines contained light-yellow, half-solid fæces. The mesenteric glands were enlarged, soft, and mottled red and white. Liver large, pale. Spleen eight inches long, dark, and

so rotten as to fall in two on being taken from the abdomen. Kidneys healthy.

Nothing has been said, in the narration of this case, of the treatment adopted, for my notes do not accurately represent throughout what it was, only sufficient to show that, during the first two days at least that he was under observation, there was nothing done to prevent us from correctly ascribing the symptoms at once to the disease.

The few words of a note which can recall any remarkable condition to the memory, are insufficient to give to others the full idea intended by those words. His condition, when roused to give an answer, was very striking; he perceived clearly that his tongue failed to express all he desired, and in attempting to supply the deficiency by the wildest gesticulations, his appearance resembled that of a person under the excitement of drink; but he thought correctly, though he could not express himself, and he felt that he could not; his memory too failed him. And this was his condition for two days, till excitement was exchanged for coma, and then he died.

The account of the dissection states, that bloody serum was found in the lateral ventricles of the brain. But as the rest of the organ was found perfectly healthy, and the blood was all fluid, there is reason to suppose that this colour arose merely from accidental staining. Or, even assuming that this staining resulted from an action taking place during life, it seems less natural to refer the cerebral symptoms to a cause which had left no further trace of its action than a little discoloration of the serum of the ventricles, than to sympathy with the abdominal disease, or to the fever generally. The amount of the abdominal lesions at such an early period as the 11th day, would favour the explanation by sympathy, but the mode of death leaves little doubt that the cerebral symptoms really depended on primary affection of the brain. For the present purpose, there is only to remark how effectually they masked the symptoms of abdominal disease.

The appearances in the small intestine presented the complete history of a typhus ulcer, commencing with the simply thickened Peyer's patch, followed first by the separation of the sub-mucous deposit,—to which this thickening was for the most part referable, —through a simple crack in the mucous membrane, and lastly, by the sloughing of the membrane to the extent to which it had been undermined. It will not be uninteresting to contrast these appearances with the changes observed in the intestines of

Case XIX.—A child dying at the end of a six weeks' illness, which had been characterized by cough and diarrhœa. The child had been ailing for some months at least, but the severe illness dated only six weeks back, having followed the appearance of fever in a younger brother. It has not been thought worth while to present the full notes of the case, as they give no assistance towards fixing these dates nearer than may be inferred from the morbid appearances themselves, and detail no fact not already presented in other cases.

The lungs were found emphysematous, but free from tubercle. The lower two or three feet of the ileum presented red, ulcerated patches within the limits of the Peyer's glands, but there was not any thickening in or around these spots; the glands looked vascular, and it seemed as if a round piece of mucous, and here and there of muscular membrane, had been cut out with a punch. But for a few inches, just above the ileo-cæcal valve, the ulcers had quite a different aspect; the Peyer's glands were generally thickened, and overhung the edges of the ulcers. The first two or three inches of the colon were marked with ulcers of the same character; then appeared simple ulcers like those seen above, and the intestine was crossed by red, wavy lines. The ulcers soon ceased; but the red lines continued down to the rectum. The mesenteric glands, corresponding to the lower part of the ileum, were large and dark.

In this patient the ulcers were of two kinds, or, more correctly speaking, appeared referable to two different dates.

Spreading upwards and downwards from the ileo-cæcal valve as from a centre, the ulcers nearest this point had thickened edges, while those further off appeared cleanly cut, and bore evident marks of recent action in the increased vascularity surrounding them. The change from one to the other was abrupt, as if, after the formation of the first series, there had been a pause, and then, from some cause, inflammation running on to ulceration of the bowels had begun afresh shortly before death. The thickening was not that characteristic of the so-called true typhus ulcer, as shewn in Case XXII., nor was it a change necessarily preceding cicatrization, as appears from the description of this process in Case XXIII., (which case there is good reason for supposing to present the more common form of ulceration, from the fact of one of the ulcers having extended beyond the limits of the patch in which it originated,—a circumstance which could hardly have occurred had the formation of the ulcers been simply owing to the separation of the deposit within the gland); but it was analogous to the chronic changes which take place in the edges of unhealthy ulcers on the surface of the body. Such at least appears to be the most probable explanation of the morbid changes, why some of the ulcers only had thickened edges.

It appears, on examination of the cases as yet detailed, that the form of ulceration described in Case XVIII., though exactly representing what has been called the ulcer specifically referable to typhus, is not the only, nor indeed at all the most common form of organic change of the intestines met with after death from continued fever in London; in fact, the morbid appearances described in Case XIX. are much more commonly seen. The differences between these two forms are so striking, that it appears worth while, at least for purposes of general observation, to consider them under two distinct heads.

To the history of a typhus ulcer, as presented in Case XVIII., there is little to add, and the account as far as it goes is complete. There remains only to see how the edges of the mucous membrane

are removed, either by simultaneous sloughing or gradual ulceration, to as far as the limits of the first slough had extended, (as may be seen in Case XXII.,) and—the process at this stage being the same for both kinds of ulcers—how the thin films of cicatrization creep over the denuded surface from those edges, (as in Case XII.,) to trace all the stages of a typhus ulcer from the beginning. Viewed in its natural progress the true typhus ulcer is purely a reparatory process. There is a slough which must be removed, the bed of which slough is the ulcer, and the normal changes of this ulcer are but the different steps necessary to repair the injury that had been caused by the formation of the substance which was deposited, and dying, had to be removed from beneath the mucous membrane. Thus much for the normal changes;—all that affect any other part than the mucous membrane are to be regarded as abnormal, and, as not being connected with the removal of the slough, which is an essential part of this form of typhus ulcer, may be best spoken of together with the destruction of the same parts by the more common form of ulceration.

In the more common form the first step is general vascular injection, with perhaps swelling of the mucous membrane; then some points on the aggregated glands of Peyer become covered with a crust (Case XXX.), or a simple abrasion of the mucous membrane is observed, which the intensity of the surrounding vascularity shews not to be referable to any accidental lesion of the surface after death;—next, (as in Case XIX.,) the mucous membrane is found to have been cleanly removed, as if by a punch, and next,—over a space in the middle of the former, but with equally well defined edges,—the muscular coat: in the middle, perhaps, a small pin-hole aperture is found communicating, through the peritoneum, with the abdominal cavity. This last step in the process is well seen in Case XXI., which illustrates in an extreme degree the destructive nature of this form of ulceration.

So far, then, as concerns the destruction and removal of the mucous membrane, these two forms are widely different. In the first described form the death of the whole thickness of the mucous membrane is consecutive to other changes, but in the last there seems to be no intermediate change,—it is itself the first result of the inflammation of the intestines; the crust on the surface being either an accumulated inflammatory secretion, or adventitious matter, which the mucous membrane, owing to its diminished vitality, is unable to repel, if indeed it be not a superficial slough of the mucous membrane itself. Beginning as it does from the surface, we can trace here no broad line of distinction between the process which destroys the mucous membrane and that which goes on to perforate the muscular and serous coats, such as may be observed, according as the direction is inwards or outwards, in fact, according to its final cause, in what is called the true typhus ulcer. The end obtained is the same, namely, the destruction of the entire thickness of the mucous membrane, but it is important to recollect the different means by which this end is obtained in the two cases respectively.

When ulceration takes place in the bed of the slough which has been separated so as to destroy the muscular coat, all visible difference between the two forms ceases, and a very peculiar process succeeds. The muscular coat is not removed in a broad flake, but is perforated in points. Rokitansky, who has so elaborately described the true typhus ulcer, refers this extension to the accidental development of a sloughing or softening action in the base of the ulcer*; and Case XXI. is well worth consulting, as exhibiting the softening process in all its details, in connection too with the apparent cause of so rapid yet simple disorganization, extreme exhaustion. Louis, also, who takes a less limited view of the nature of the changes strictly referable to

* Path. Anat. Bd. iii. S. 250.

the Fièvre Typhoïde, recognizes a difference between the ordinary ulcerative and perforating processes, and refers the last to absorption.*

But whatever be the form of ulceration, its special seat and the point from which it begins is the same—the Peyer's glands of the lowest part of the ileum, whether the solitary or the aggregate are attacked first, and thence the disease spreads upwards and downwards as from a centre. It is only in severe cases, and at particular seasons, that any great tendency of the ulceration to spread far along the colon is noticed; it rarely passes downwards beyond the cæcum; but upwards it extends so regularly that the whole history of an ulcer can be clearly traced in most cases of fever fatal during the second week;—a regular gradation of lesions may be found, from the first formation of the submucous deposit to its final elimination, or from the first abrasion of the epithelium to the perforation of the mucous, the muscular, or may be the serous coat of the intestines, commencing in the ileum, reaching its highest point of intensity at the ileo-cæcal valve, and declining thence along the course of the colon.

The process is so exceedingly uniform, that it is important to notice an occasional exception, such as Chomel describes,† where apparently the order of progression was inverted. There is nothing peculiar to fever, however, in this order, for the ulceration in phthisis extends according to the same law, only having a stronger tendency to pass along the colon. In other circumstances, also, the ulcers of phthisis resemble those of continued fever so closely, that their discrimination becomes sometimes very difficult. There are many diagnostic characters to consult:—the presence of tubercular matter about the ulcers, their transverse direction, especially in the colon, their tendency to destroy the other coats as well as the mucous membrane, will rarely fail to point out their true nature even apart from all

* Rech. Anatomico-pathologiques, p. 199.

† Clinique Médicale, tome i. p. 90.

considerations of the state of other organs; but there is no one infallible diagnostic sign to distinguish a recent tubercular ulcer—to take the case of greatest difficulty—from a sluggish ulcer remaining after fever.

From the lesions discoverable after death, the next step is to the consideration of the symptoms observed during life which are more exactly referable to them; and first of the most striking symptom of all—hæmorrhage from the bowels.

CASE XX.—*Fever; profuse hæmorrhage from the bowels; recovery.*

Elizabeth Gannaway, aged 16; admitted April 17th, 1846. Hope back ward. Thin; face distressed, rather flushed; tongue moist and thinly furred, with prominent papillæ at the sides, a broad, dry, brown streak down the centre; bowels much relaxed, abdomen flat, very tender in the right iliac fossa; pulse 144, small and soft. She has thirst, loss of sleep, anorexia and debility of three days' duration.

History.—A servant; always healthy. Eleven weeks ago, the catamenia were suspended. Seven weeks back, she was taken severely ill, "in some way quite different to this;" but it cannot be made out how. She got nearly well, and her appetite had returned, when, three days since, after having got wet, she was delirious that night, and profuse diarrhœa set in. The present symptoms then commenced, and have continued increasing to the present time.

Ordered, compound mercury and chalk pill, five grains, every night; a saline draught, with camphor mixture, thrice a day.

5th day.—No sleep; wandering and restless all night. Tongue fissured, otherwise as yesterday; pulse 120, very small and soft; skin hot and dry, no rash. One loose evacuation from the bowels. Her face is paler, and she complains of feeling cold.

Ordered to continue; to take some chalk mixture, should the bowels be relaxed.

6th day.—Good sleep; some pain in the head; tongue dry, with a thick, flaky coat; pulse 120, small and soft; bowels much relaxed, the motions watery, but containing healthy fæcal matter; abdomen tender.

Ordered to continue.

7th day.—No sleep, rambling all night; she vomited a little this morning; bowels less relaxed, motions as yesterday; urine scanty; skin warm, rather moist; tongue as yesterday, dry; pulse 132, small and soft; she complains of pain in the head, and of feeling chilly.

Ordered to take only two grains of compound mercury and chalk pill at night; to have her head shaved, and a blister plaster applied to the vertex.

During the two following nights she slept quietly and well. Her bowels were relaxed, and one evacuation was dark and offensive, and was thought to contain blood; she felt cold; at one time she had nausea, but at others expressed a wish for food; her tongue remained dry and brown, with a thick fur at the sides.

On the 10th day, she was drowsy, but had spent the previous night without sleep; the evacuations from the bowels were light-coloured and ochry; pulse 132, very small and soft; she had no pain anywhere, only a feeling of constant chilliness.

Ordered, a draught composed of infusion of cascarilla, with half a drachm of tincture of the same, thrice a day, and four ounces of wine daily.

11th day.—She has been suffering much pain in the abdomen preceding each evacuation, most of which are fluid, and of a deep scarlet colour, the last is ochry; her abdomen is very painful on pressure; pulse 132, small and soft; tongue cleaner, rather moist; skin dry and harsh, with a patchy redness on the left forearm, not fading on pressure

Ordered to continue.

12th day.—She lies quietly on her side; skin a little moist, no rash, and less tenderness of the surface of the abdomen; she has passed one fluid evacuation, unmixed with blood; tongue dry, and brown in the centre; pulse 132, small and soft.

Ordered to continue; to take two pounds of beef, for tea, daily.

She was restless during the two next nights; but the history of the case till the fifteenth day presents nothing particular to claim attention beyond the heathy condition of the alvine evacuations, and the distinct reference of the pain in the abdomen, on the fourteenth day, to tenderness of the surface of the body rather than to abdominal disease.

15th day.—She slept pretty well; pulse 108, small and soft; skin warm and moist, with an abundant crop of miliary vesicles all over the body; tongue cleaner, and moist; bowels relaxed, three light-coloured fæcal motions; abdomen full.

Ordered to continue.

16th day.—She lies on her back, talking sensibly when addressed, but apparently weak in her intellect: pulse 114, small and soft; tongue clean and dry in the centre, the edges moist, with thick mucous dots; the miliary vesicles are still large, and very abundant; bowels once open, the evacuation free from blood; abdomen soft, still tender on pressure.

Continue.

17th day.—Little sleep; tongue dry, and chapped down the central brown streak, still crusted with thick mucous dots at the sides; her face is anxious, and a little flushed; her conversation flighty and querulous.

18th day.—She had some good sleep, but was delirious; skin warm and moist, the vesicles still very apparent; pulse 126, very small and soft; tongue moist, and clean but for the mucous crusts, which still adhere to it; bowels once open, abdomen tolerant.

On the 19th day her appetite began to return: by the 21st day her tongue had become clean and moist, and she might be said to be well, only weak. Her convalescence was rather protracted by the eruption of a number of boils over the surface of the body, accompanied by swelling of the left cervical glands. She casually visited the Hospital in the following January, having perfectly recovered her health.

An examination of the recorded particulars in this case does not show any symptom from the presence of which it might have been inferred that she was going to suffer hæmorrhage; the evacuations were of the ochry character so generally supposed to indicate the existence of ulcers in the intestines, but nothing gave reason to think that these ulcers were advancing so as to become shortly the seat of the profuse bleeding which took place on the eleventh day. As to the effects of this great loss of blood;—immediate, these appear to have been very few; there was no notable exhaustion; her tongue had become moist, and the chilliness, which one would have expected to follow rather than to precede hæmorrhage from such a cause, had passed off: yet the characters of the blood, and the rapidity with which the scarlet were succeeded by more natural coloured evacuations, forbid the conclusion that it had been retained for any long time in the intestines. At a more remote period, a more distinct effect of the hæmorrhage followed in the excitable state in which she lay for a few days, her condition very closely resembling that seen in women after protracted lactation, though it was not of so long duration. The aphthous state of the tongue was very remarkable; but nothing was noticed in the cases of fever or of other disease occurring about this time, to attach any especial meaning to it.

Perhaps this case has been incorrectly assumed to have been one of hæmorrhage from ulceration of the bowels; for it may have been a spontaneous effort to relieve the overloaded mucous membrane or the system at large; and with this view the symp-

toms observed in immediate connection with the hæmorrhage, though not those of an earlier date, in some measure agree. Passive it could hardly have been, as may best be seen by comparing it with Case XXX., where the hæmorrhage seemed fairly to answer to this description. Looking for its interpretation to cotemporary cases, where a similar event was followed by a less fortunate result, a result too apparently closely connected with the hæmorrhage, the particulars of the following case, in their abridged form, will not be uninteresting.

Case XXI.—*Fever; hæmorrhage from the bowels; death; dissection; sloughing ulcers of the intestines.*

George Bell, aged 25, admitted June, 1846. Matthew front ward. A fine, strongly-made man; had been low and languid for the last three or four months, and about three weeks before his death these symptoms much increased, but, as he was supposed to be suffering from syphilis, no great notice was taken of him. However, as he kept getting worse, after a week he was brought to the Hospital. There was then nothing to attract particular attention in his symptoms, as he lay drowsily in bed, like most patients with continued fever, during the first week after his admission. The evacuations were generally loose and light-coloured till the end of the second week, when, on two consecutive days, he had profuse discharges of blood from the bowels; subsequently the evacuations were solid.

After this loss of blood he became violently delirious, so that he was obliged to be kept in bed by force. He lay on his back profusely perspiring; his muscles quivering; passing all his evacuations unconsciously beneath him; his pulse extremely weak; unable to speak, but apparently sensible. The small quantity of stimulants which he had been taking was now increased with decided benefit, and the improvement continued till about the end of the third week, when he suddenly failed, and sank rapidly in the course of a few hours. An abundant

miliary rash had appeared over his skin during the last few days of his life.

Body examined 13 *hours and a half after death.*—June 20th.—There was nothing to remark on in the condition of the brain or thoracic viscera in relation to the present subject, only the heart, as is generally found to be the case in delirium from exhaustion, was soft and flabby.

The peritoneum was generally healthy, and there was no effusion into its cavity; the stomach was much congested about the cardiac end; the large intestines, and the small also, down to within thirty inches of the ileo-cæcal valve, were quite healthy. Commencing from this point, there appeared first a grey Peyer's patch; then followed a succession of small ulcers, varying from one to six lines in diameter, about eight or ten of them altogether. Their situation was denoted by a yellow gelatinous deposit, on the removal of which the mucous and muscular coats were seen to have been completely destroyed to the above extent. The edges were soft but sharp, as if cut with a punch, and of a dirty grey colour. Across the bases of the ulcers stretched the serous coat, which appeared sound, but was easily ruptured by the pressure of a stream of water. There was no increased vascularity of the peritoneum itself, but the situation of the ulcer was easily discernible from the outside, by the increased vascularity and opacity of the other coats hereabouts appearing through the serous membrane. Generally, throughout the lower part of the ileum, there were traces of increased vascularity, but there was no effused blood in the intestines. The mesenteric glands were dark, but scarcely enlarged.

Fever, not marked at the beginning by any prominent symptoms,—hæmorrhage from ulceration of the bowels,—extreme exhaustion manifesting itself through the nervous system in delirium and death, and in the intestines by a rapid and peculiar extension of the ulceration; such is the outline of the above case.

It is matter of observation how, in continued fever accom-

panied by great exhaustion, not only those parts exposed to pressure, as the nates, but all parts where, from any cause, the circulation is weak; as, for instance, the skin over a bubo, or, in some terrible cases, the lower extremities,* have a tendency to slough. Why hæmorrhage should have taken place here, cannot be said; that is the first fact in the series. Its effects appear when, instead of ulcerating, the coats of the intestines simply softened, not to say sloughed, and the process extending equally in all directions—not along the mucous membrane only—perforated the muscular coat, and was apparently destroying the peritoneal coat also, when it was interrupted by death. It seems that the blow was struck all at once; there was no regular gradation of lesions on descending the intestines, from the simply thickened to the ulcerated patch; they were few and small, but of the utmost degree of severity, for though so few and small, they were the cause of the patient's death.

The next case has been inserted with a view of still further extending these remarks on hæmorrhage from the bowels during fever. It is necessary to mention, to prevent any confusion, that, as occurring in 1847, it has not been included in any general remarks on the cases occurring in 1846, among which it is here detailed.

CASE XXII.—*Fever with bronchitis and pneumonia; hæmorrhage from the bowels; death; dissection.*

Jane Walker, aged 19, admitted Feb. 3d, 1847. Faith front ward. Well made; dark complexion; face dusky, anxious; tongue rather dry; pulse 100, small, soft, sharp; skin hot and moist; has urgent cough and dyspnœa, of about a fortnight's duration.

History.—A prostitute; was in this Hospital about two years and a half ago for some venereal affection, and immediately afterwards for jaundice; on neither occasion was she

* Roupell on Typhus, p. 102, Case XXXIX.

treated by mercury. Since that time the catamenia have been very irregular; they occurred last time five months ago, but having had cold water thrown over her at that time, they have not since appeared. A month since she had severe pains in the limbs, and for the last fortnight she has lain in bed suffering from cough and purging, but chiefly from cough.

Auscultation.—Abundant rhonchus and sibilus through both lungs behind, mixed with rather small crepitation. Percussion elicits loud resonance above; below, the resonance is impaired.

Ordered to be cupped to six ounces beneath the scapulæ; to take a saline draught, with one drachm of oxymel of squill, and half that quantity of spirits of nitric ether, every six hours.

Feb. 4th.—She felt no relief from the cupping; she lay quiet, but had no sleep; face dusky; tongue dry in the centre, with furred edges; bowels once open; abdomen slightly tender on the left side; pulse 112, small and weak; there is no rash to be seen on the skin; she is rather deaf.

Auscultation.—Crepitation rather larger; she expectorates an abundant puriform mucus.

Ordered to continue.

Feb 5th.—She slept but little; she lies on her back, quite deaf, with a listless expression, in a state of extreme exhaustion, expectorating a copious puriform mucus, streaked with blood.

Ordered, wine, six ounces; beef for tea, one pound daily; sesquicarbonate of ammonia, three grains, with tincture of squill, twenty minims, every four hours.

In the evening she was raised out of bed, to empty her bowels, but the falling of a heavy body, as it were, when the contents of the vessel were being thrown away in the dark, and her subsequent fainting, aroused the nurse's attention: the next evacuation, which was passed in about twenty minutes afterwards, and a third, passed in about an hour more, were examined, and found to be composed generally of fluid blood, to the amount of more than a pint each, with some mucus and a few

coagula. She now became very faint and cold, and had a severe shivering, but under the influence of some wine, which was immediately prescribed, she rallied; the surface became warm, and she fell asleep. A small quantity of blood, apparently not more than one or two ounces, flowed afterwards into the bed.

Feb. 6th.—She lies on her back, so deaf that nothing can be elicited from her by questions; skin warm and perspiring; tongue clean, dry; pulse 110, extremely weak; bowels not open, abdomen full, tender in the hypogastrium; respirations 44, with troublesome cough.

Ordered to continue; to increase the daily amount of wine to ten ounces.

There is little to remark from this period till her death. She always lay on her back, impenetrably deaf, face dusky, and exceedingly anxious; bowels requiring purgatives at times. The evacuation which passed first after the great hæmorrhage was solid, and quite unmixed with blood; the hypogastrium was always a little tender; pulse about 112, always extremely weak; tongue dry, the gums crusted with sordes; respirations 56; cough very troublesome, with abundance of muco-purulent expectoration, occasionally streaked with blood. The treatment was directed to sustain her, and to relieve her cough, but her weak state forbade any attempt at a complete auscultation. With great difficulty a blister was raised on her chest, but she seemed to derive no advantage from it. The oppression and anxiety were at their height on Feb. 14th, when she died quietly.

Body examined 62 *hours after death.*—There were many sudamina on the sides of the chest; the limbs were still rigid, but the neck relaxed; the blood firmly coagulated. Brain healthy; pleuræ free, except a single old adhesion about the left base; lungs pale, hard, heavy, the tissues generally œdematous, especially on the right side: the bases of the lungs, however, were rather harder, and the fluid exuding from them on pressure was more turbid than is usually seen in œdema. In the middle of

the right apex was a greyish-red mass, distinct from the neighbouring tissue, sinking in water, in which all the rest of the lungs floated, and giving issue, on pressure, to an opaque grey fluid: this mass was about two inches vertical, by one inch horizontal measurement. Besides, there were several small deposits of thin, yellow pus, in cells with polished walls, one of which distinctly communicated with an inflamed bronchus, and in other places were concrete yellow bodies, lying in cracks, as it were, in the substance of the lungs. The bronchi contained much loose, puriform, frothy mucus. The pericardium contained about one drachm of fluid: the surface of the right auricle was roughened by loose filaments from old pericarditis: the heart was healthy in all respects, save one small warty growth of fibrin from the edge of the mitral valve, and a little thickening of the aortic corpora Arantii.

The stomach was of an enormous size, the mucous membrane decomposed, but apparently healthy; the intestines externally were healthy, except the ileum, which presented several red patches, corresponding, within, to Peyer's glands, from over many of which the mucous membrane had been removed, (the edges being all raised, and somewhat excavated) leaving the muscular layer very distinct, and coated here and there with white flakes; in some places the muscular layer also had been destroyed, only the peritoneum being left. All these changes were most advanced in the neighbourhood of the ileo-cæcal valve, where small islands of mucous membrane appeared in the middle of wide-spreading ulceration: they did not extend into the cæcum. The mesenteric glands were large and dark; two or three about the caput coli were chalky.

The uterus was hardly larger than ordinary—thirty lines extreme length, by twenty extreme breadth, and the walls nowhere more than five lines thick: its substance was firm, the neck closed by clear mucus, the mouth natural, the veins in its substance rather dilated: within, the mucous membrane looked

quite pale and smooth, even when examined by a lens; externally, many loose filaments hung on the peritoneal surface. The Fallopian tubes were obliterated at the fimbriated extremities, which adhered closely to the ovaries; from the right tube hung a few small serous cysts. In the ovaries were a few small cysts and some black specks, one of which contained a little red pultaceous substance, but there was nothing like a corpus luteum anywhere. The vagina contained a little sanious matter, but there were no ulcerations nor any visible source of hæmorrhage discernible in it; the mucous membrane of the bladder was also healthy. The liver and kidneys were healthy; the spleen presented two or three specks of the so-called capillary phlebitis; it was otherwise healthy.

To enter fully into the interest which the case of this unfortunate girl excited, it is necessary to explain that the nurses of the ward represented her as having had a miscarriage, and that all hæmorrhage having ceased by the time they sent for assistance, no examination of the uterus was made in the state of collapse in which the patient then lay: hence the lengthened account of the circumstances under which the blood was passed, and of the appearance of the uterus and its appendages after death; from which it appears certain that the patient did not miscarry, and probably that the hæmorrhage was not from the uterus at all, but from the ulcers of the intestines *.

It appears probable only that the hæmorrhage did not take place from the uterus; but the enlarged veins in that organ, and the state of irritation in which it was likely frequently to have been, judging not merely on general grounds from the nature of the case, but from the filaments of lymph adherent to the fundus, prevent any certain conclusion being arrived at. It

* Dr. Watson (Lectures, ii. p. 688, 1st ed.) gives the outlines of a case where the same question was raised.

would require very strong evidence to make one believe in an occurrence * so rare as flooding of this kind, independent of abortion, in continued fever. By way of exclusion, the hæmorrhage is presumed to have been from the ulcers in the intestines.

In four cases—namely, the three just detailed, and in Case XXIII., next following—there was more or less abundant discharge of florid blood from the bowels for a limited time, and then it ceased. In three of these cases death followed at an interval of not less than a week, and dissection showed ulceration of the bowels: the fourth got well. Now, without entering fully into the reason of the thing, which could only be discussed after a much more minute examination of the parts adjoining the ulcers than was here instituted, the fact can only be stated. But, leaning on this, it appears that sudden hæmorrhage occurring during fever, which there is reason to suppose to arise from ulceration of the bowels, need not cause any great apprehension beyond the immediate danger of exhaustion. For this appears to have been the cause of death in the two last detailed cases; while in the first, and in Case XXIII., but for the observation of the blood, there was nothing in the symptoms to lead one to suspect even that hæmorrhage had taken place. A symptom which should cause much more alarm than the discharge of florid blood from the bowels is the appearance of black coffee-ground evacuations, in connection with its possible causes, as illustrated in Case XXX. The observations of Louis seem entirely to justify this statement. Two marked illustrations of it occurred during the last year, making up, with three cases (XX., XXI., XXII.) here detailed, five of hæmorrhage from the bowels.

But it is not to advocate such notions as that because fever

* Profuse hæmorrhage from the uterus is mentioned as having occurred in Case XXIII., p. 85, of Dr. Roupell's Essay on Fever. The patient recovered.

patients may suffer accidents the most alarming, and quite beyond our control, and yet get well either wholly or at least from the effects of that particular accident, that these remarks are made. Even in this profuse bleeding *, which assuredly is one of the most frightful symptoms that can present itself in fever, there is generally time for treatment. The bleeding will not necessarily recur;—it depends probably on ulceration, and the treatment calculated to check the progress of that ulceration is what is to be followed, rather than any plan calculated merely to check the bleeding. Leeches, blisters, and the gradual action of mild mercurials, combined with opium, are to be thought of rather than direct astringents. This is the great indication.

* The following narrative from Dr. Abercrombie (On the Stomach and Bowels, p. 261, 3d edition), is of interest with regard to the present subject, as well as to the previous remarks on the obscurity of the diagnosis of ulceration of the bowels in fever, in illustration of which last point it is cited, with other striking cases, by Dr. Tweedie (Illustrations of Fever, p. 69):—"A gentleman, aged 35, had been affected for a few days with the mildest form of continued fever; had kept his bed only two days, and had not done so until desired by his medical attendant. —Two days after, he got up to go to stool, and discharged from his bowels a quantity of fluid blood, which nearly half filled the night table. He fell, in a state of syncope, on the floor, where a mattrass was put under him, after he had recovered a little, as it was found impossible to get him into bed. After some time blood began to flow again from his bowels, in such quantities as to penetrate entirely through both the mattrass and the carpet—he died in about four hours after the first appearance of the blood. *On inspection*: on the inner surface of the lower end of the ileum, which was dark externally, and thickened, there was a deep defined ulcer about the size of a shilling, with elevated edges; it was partially filled up by a dark red fungus, and by portions of coagulated blood. There was a similar ulcer in the caput coli, but the former appeared to have been the source of the hæmorrhage."

Then, keeping in mind the possibility that the hæmorrhage may have arisen from active congestion rather than ulceration, and so be rather a salutary action than otherwise, the subsequent amount of stimulants, and indeed the whole subsequent treatment, must be regulated by the indications of strength given by the pulse. For the case is still one of fever, to be studied day by day in all its particular symptoms as much as if no hæmorrhage had occurred.

CHAPTER VI.

AFFECTION OF THE BOWELS IN FEVER, CONTINUED.—ULCERATION A CAUSE OF PROTRACTED FEVER; TREATMENT OF SUCH CASES.—PERITONITIS FROM PERFORATION.—OPPOSITE FORMS OF TREATMENT REQUIRED FOR THE SAME COMPLICATIONS.

The last chapter was devoted to the consideration of some of the indirect symptoms which may arise in connection with affection of the bowels in fever, of the history of the organic changes of the mucous membrane of the intestines, and of one of their direct symptoms—hæmorrhage; referring, for the most part, to an early stage of the disease. The subjects there entered upon necessarily comprised much—especially as regards the anatomical details—that might as properly have been subjoined to the following cases, which thus far may be considered as complementary to the others; but they have a much higher interest than that of showing how long ulcers may remain without any attempt at reparation, or what the peculiar appearances are which characterize that process; for, speaking generally, without as yet dwelling on the particular details, they teach a great practical lesson, namely, that the protracted convalescence of the patient, although the symptoms do not betray its existence, may depend upon the most serious organic disease.

Though we have ceased at the present day to talk of cutting fever short, and limit our endeavours to treating symptoms as they arise, yet the most anxious care and the greatest skill have nowhere a wider field than in the treatment of fever, and this scarcely more at the beginning than at the end, however long delayed, of the disease. The symptoms during a protracted convalescence are more obscure, the patient less able to undergo any active treatment, and the effects of any injudicious measure

not so soon discoverable as at the beginning of the disease. The danger from the actual amount of the organic lesions may not be great,—it rarely is so,—but the danger from protracted illness is exceedingly great. For so long as the patient remains ill, he is very liable to particular influences capable of inducing not only disease of important organs, as might happen in any weakly person, but at the same time with such diseases, possibly, a relapse of fever; and besides, there is every reason to fear sloughing from long-continued pressure; and all this the more in proportion to the daily increasing exhaustion, especially in patients of at all advanced age. Certainly, the temptation is strong, when all these symptoms point so decidedly one way, to take a decided part in the other direction in treatment; to prescribe for what we see and dread, rather than follow up a counter indication where we can only suspect. And if one of two opposite plans must be blindly followed, the indiscriminately stimulating plan would be infinitely preferable, though those, the comparatively few, who escaped with life under a contrary system of purging or depleting, would probably have their organs in a sounder state than those who had been stimulated through, as it is said, regardless of any local complications.

The two following narratives, the first of which is given in outline only, have been selected, not for the purpose of advocating one or other mode of treatment, for the cases both terminated fatally, under what, even tested by dissection, appears to have been the best plan, but simply as illustrating the nature of the cases to which the above remarks apply. The patients were most carefully watched, and the symptoms sifted, as it were, from time to time, in quest of any new indications; but death came at last, and dissection, in recognizing a sufficient cause for the fatal termination, could only suggest that the same event would probably have happened at a much earlier period had any less cautious system of treatment been employed.

CASE XXIII.—*Fever; death by gradual exhaustion, with pulmonary symptoms, on the fiftieth day; dissection.*

Elizabeth Bosworth, aged 23, admitted Oct. 23, 1846. Mary front ward. Full made; dark complexion; face flushed; manner hurried; tongue moist, with a thick fur on the dorsum, the tip and edges clean; skin warm and moist, generally very red; pulse 120, with some power; bowels relaxed; abdomen rather tender on pressure; has headache and general uneasiness of twelve days' duration.

History.—She is a nervous, excitable person, and has been in the Hospital before for hysteria. She states that she had always good health till twelve months ago, when she received a blow on the left side, and to this accident she has always referred her subsequent ailments, namely, occasional severe pain in that side, and slight hæmoptysis. In September last, she suffered from the epidemic diarrhœa. Twelve days ago, the catamenia, which should have appeared, were replaced by epistaxis, which has continued, accompanied by headache. She has been treated at home by purgatives, and nothing was thought of her illness till just before admission, when she had a violent attack of hysteria or delirium.

She was ordered to have her hair cut, to take five grains of compound mercury and chalk pill thrice a day, and to be put on milk diet, with arrow-root.

14th day.—Her face is paler, except when she is excited by being spoken to; tongue cleaner, moist; pulse 84, small, soft; bowels not open; skin warm and moist, without rash; her sleep was interrupted by headache.

Ordered to continue the pills; to take a saline draught every four hours.

For the next five days there is but little difference in the tenor of the daily note, which runs, on the nineteenth day, that she sleeps well at night, and is always drowsy during the day. Her face is flushed and dusky; skin mottled, but presenting no

distinct rash; pulse 120, small and soft; bowels requiring the occasional use of purgative medicine; urine abundant.

She has been taking five grains of mercury in chalk at nights, and a saline draught with camphor mixture every four hours.

On the afternoon of the twentieth day she became very dusky, her tongue at the same time dry, her pulse very small and soft. These symptoms passed off in a few hours; her skin then became hot, and she complained much of thirst, the condition of the alvine evacuations being quite natural. This state of things having recurred twice, was the indication for her being placed on the daily use of four ounces of wine on the twenty-second day.

Again, the notes from the twenty-second to the fortieth day have little to record beyond the occurrences of single days, which apparently had little influence on her general condition, as neither could they be plausibly referred to any particular changes in it. The twenty-third day finds her receiving great comfort from the daily use of the small quantity of wine. The note of the twenty-seventh has a remark, that a few ounces of blood have passed from the bowels, mixed with the evacuations, which, having hitherto been loose and passed unconsciously, were for some time following this note natural, and not again marked with blood during the remainder of her illness. The note of the forty-third day reports the occasional occurrence of vomiting, and her continuance in the same dull heavy state as she had been in all along. She lay in bed regardless of everything, being made to understand with great difficulty, and never calling to express any of her wants. All this time little else was done but to support her with nourishing diet and stimulants.

The forty-sixth day finds her more willing to take her food, less dusky, and more cheerful; tongue with a moist fur; pulse 120, small and soft; bowels confined; abdomen tolerant of pressure; skin warm and perspiring, with a scattered miliary rash. This amendment was but temporary; on the forty-seventh she is lying lower in bed, and her face is again dusky. Pulse above

132, very small and soft. On the forty-ninth she is in a profuse perspiration, and a troublesome cough is the source of a good deal of suffering. The condition in which she had lain so long ended quietly in death, on the 50th evening.

Body examined $15\frac{1}{2}$ *hours after death.*—Neck relaxed; limbs rigid; blood firmly coagulated and separated. Brain not examined. The pericardium contained about six ounces of clear serum, with a flock or two of fibrin floating in it: heart healthy. The right pleura was free; the left universally adherent, in front by loose, easily separable agglutination of the two layers, behind by a firmer medium, namely, a thick, tough layer of fibrin, extending closely over the left apex and a space of about seven inches by three inches and a half on the outer and posterior surface of the lung, but separated from the lung below by a thicker layer of gelatinous-looking fibrin, infiltrated with serum, which coated much of the posterior part of the lung without entering into the interlobular fissure, which was closed by adhesions. The apices of both lungs were very œdematous, the bases consolidated, so as to sink in water, hard and rather darker than the rest of the lung, but yet not so dark as a healthy lung,—the combined result of œdema and pneumonia. In the left this consolidation was uniform; in the right were numerous white points, where mucus and pus were collected in the ends of the bronchial tubes; the larger bronchi, excepting some traces of injection, were healthy. Some small granular opaque tubercles were scattered throughout the right apex. The bronchial glands were slightly enlarged, but not tuberculous.

The stomach and the small intestines, to within about three feet of the ileo-cæcal valve, were healthy. Here Peyer's patches began to be visible; then, a little below, in a few of them, were small ulcers, with dark edges, and some white films, as it were, of commencing cicatrization; some, however, were still red, and the edges sharp, as if cut with a punch. One in particular of this kind had its long diameter transversely placed, and ex-

tended beyond the limits of the patch. The ileo-cæcal valve was dark, and marked with cicatrices of two or three imperfectly healed ulcers. The solitary glands were generally enlarged, the mesenteric not notably so.

The colon presented numerous small ulcers, all more or less advanced in cicatrization, extending as far as the sigmoid flexure, situated chiefly on the transverse rugæ and the longitudinal bands of the intestine, of an oval form, the long axis transverse, about three lines long by half that breadth. The transverse colon was so long as to hang down almost to the pubes. All the other viscera, including the spleen, were healthy.

Whether the symptoms be regarded singly or as a whole, there are probably few who have not seen cases equally severe, as judged of by these symptoms, get well; and indeed, had she died at an earlier period, probably the lesions in the abdomen would have been found much more considerable. She apparently, then, did not die of the amount of disease produced by the fever, but failed to rally after the fever had passed over. Just at the last her back became sore from constant lying, with whatever care she was turned, but no bed sore, as sometimes happens, was the local injury which impeded convalescence at the time when it usually begins. The immediate cause of her death, as of Case XII., was pneumonia, but the cause that detained her so long in a condition liable to attacks of this character, anatomy tells us nothing of, though it brings us one step nearer, by the the disclosure of ulceration of the bowels.

Deferring some other considerations which the case suggests to the examination of the following one, it is worth while to call attention to a few particulars noticed in the course of the above narrative. 1. Fever coming on in a weakly, nervous subject, marked by no severe premonitory symptoms, attended thoughout by no reaction, is a history that is not at all unreasonably ended by a simple statement of the death of the patient. 2. In connection with the replacement of the catamenia by epi-

staxis, the remarks of Chomel* are of interest, who, allowing fully for the fallacy arising from the patient being liable to epistaxis at other times, enforces the importance of the occurrence of long-continued slight epistaxis, as a diagnostic character of the first week of continued fever: epistaxis, however, it must be acknowledged, has been very rarely observed accompanying continued fever in the patients treated in this Hospital of late years, certainly not more than once in thirty cases. 3. The history and the dissection mutually illustrate each other: the chronic thickening of the left pleura is probably correctly referred to the blow which she had received on that side a year before, and, it would appear, to the blow itself, independent of any fracture of the ribs: the tubercles in the lungs are to be looked on in connection with the hæmoptysis to which she was occasionally liable, and the single discharge of blood from the bowels is probably referable to the ulcers existing there.

Case XXIV.—*Fever, with papular rash; death by exhaustion; perforation of the intestines; collection of pus in the peritoneum.*

Caroline Ward, aged 28, admitted Oct. 16th, 1846. Faith front ward. Middle sized; dark complexion; face flushed and anxious; skin hot, profusely perspiring; tongue moist, red, with prominent papillæ; pulse 100, soft; bowels much relaxed, abdomen distended, tender; has pain in the abdomen and limbs generally, following a sudden attack of fainting and giddiness six days ago.

History.—A servant, single, deaf from childhood. She has been attending a family one of whom lately died of fever. Six days ago she was suddenly taken ill with fainting and cold shivering; then came headache and diarrhœa, and, the same day, delirium. Her deafness prevents any exact history of the farther progress of her symptoms being obtained.

Ordered an aromatic draught at once.

* Clinique Médicale, tom. i. p. 15.

8th day.—She slept quietly, and her bowels have only been open twice. Face still flushed; skin hot and perspiring, with a scanty papular rash on the abdomen; tongue moist, red; pulse 115, full and soft; abdomen less full, but very tender in both iliac fossæ; she has a slight cough.

Ordered, a saline draught, with camphor mixture, every six hours.

9th day.—She slept well, and is now drowsy; face less flushed; tongue red, inclined to dry; pulse 112, with more power; skin hot and moist, with a very abundant papular rash all over the front of the abdomen and thorax; two dark, relaxed motions; abdomen softer, but very tender. She has some pain in the chest, and still coughs, but feels more comfortable.

Ordered to have eight leeches applied to the abdomen, to take an aromatic draught immediately, two grains and a half of mercury with chalk thrice a day, and to continue the saline draught.

10th day.—The leeches drew a good deal of blood. She was restless and delirious during the night; now she is drowsy, with a dull expression; skin hot and perspiring; tongue red and dry; two relaxed, yellowish motions; abdomen very tender.

Ordered to have four leeches applied to the right iliac fossa; to take five grains of compound ipecacuanha powder to-night; to continue the saline and the aromatic draught.

11th day.—She slept well; her face is less flushed, and she is more intelligent; pulse 116, full and soft; tongue dry and red; three relaxed motions of a more natural colour.

Ordered to continue as yesterday; to have six leeches applied to the abdomen.

12th day.—Good sleep, without delirium; tongue pale, dry; pulse 120, with power; skin cool; the rash continues visible; three relaxed, ochry motions, abdomen still tender. She has occasional muscular subsultus.

Ordered to continue the powder and the aromatic draught;

to have a poultice applied to the abdomen, and to take four ounces of wine daily.

13th day.—She slept well; now she is drowsy; pulse 120, small and soft; tongue clean, dry; skin warm and dry; one evacuation from the bowels, abdomen a little tender.

Ordered to continue.

14th day.—Good sleep at night, dull and heavy condition by day, is entered in the daily report till the nineteenth day. Skin hot and dry; tongue dry, chapped; pulse 110, full, soft; bowels relaxed, motions passed unconsciously, abdomen tender. She takes her food willingly, and says that she feels better.

Ordered, an aromatic draught, with ten minims of tincture of opium, immediately; five grains of compound mercury and chalk pill thrice a day; the wine to be increased to eight ounces daily, and a blister plaster to be applied to the abdomen.

16th day.—She lay yesterday in a heavier state than before. Since the addition at that time of some beef-tea to the other nourishment, to-day's note records a more lively condition; she hears better, and declares herself free from pain: her tongue is dry and glazed; bowels relaxed, but the evacuations more healthy.

Ordered, an aromatic draught immediately; continue.

19th day.—There is little in the intermediate notes to attract attention, except the greatly improved expression of her face remarked on the seventeenth day. Last night, however, she was noisy, and complained of pain in the abdomen. Now she has headache; her face is flushed; pulse 130, sharp; two dark, slimy evacuations, abdomen tender on pressure; tongue clean and dry.

Ordered to have her hair cut; to continue.

20th day.—Her face is less flushed; she has relapsed into her deaf, drowsy state; pulse 120, smaller, and soft; tongue clean and dry; skin warm and moist, with abundant miliary eruption.

Continue.

21st day.—She slept well. At 9 A.M. she was raised for a few minutes while her bed was being made; at 11½ A.M. she had a severe rigor, followed in about an hour by heat; now, at 1 P.M., she is restored to her usual condition; pulse 120, small, soft; tongue moist, slightly furred; bowels relaxed; the miliary vesicles over the nates are becoming opaque. By 4 P.M. her skin was moist and cold; her cheeks dusky; she had slight muscular subsultus, and some cough.

Ordered, sesquicarbonate of ammonia, five grains, out of camphor mixture, every four hours; five grains of compound mercury and chalk pill twice a day; to continue the wine and beef-tea, and to have a large blister plaster applied to the front of the chest.

22d day.—She slept well; the blister rose well; face less dusky, more cheerful; pulse 120, soft; one healthy, solid evacuation; she has a difficult, dry cough; respirations 36.

Continue.

23rd day.—A slight rigor occurred this morning; otherwise she is the same as yesterday.

24th day.—A small sore, which was noticed on her sacrum two days ago, is spreading; bowels much relaxed, motions dark and offensive; tongue clean and dry; mouth touched by the mercury.

Ordered, beef, two pounds, for tea; wine, eight ounces, daily; an aromatic draught, with tincture of opium, ten minims, thrice a day; to omit the former draught.

25th day.—She slept well; she vomited once this morning; pulse 132, small and soft; tongue with a thicker fur; two rather more healthy evacuations from the bowels.

Ordered, to substitute four ounces of brandy for the wine; to add half a drachm of tincture of catechu to the aromatic draught.

The notes of the next five days speak of constant vomiting. The treatment, consisting for the most part in the use of various articles of diet according as the caprice of her stomach re-

tained one or other of them, has chiefly relation to this symptom. Meanwhile the sore on the back continued to spread; and on the thirty-fourth day the ligaments of the sacrum were exposed.

On the 35th day she assumed the condition in which she lay during the remainder of her life. Face dusky; tongue clean, dry, and very red, with aphthæ scattered over it; pulse 144, small and soft; the evacuations from the bowels healthy, the abdomen very tender. The incidents which marked the rest of her life are few:—She lay on her back or side, as she was placed, on a water-bed, sensible of her wants, and very thankful for all attentions paid her; the abdomen always remained exceedingly tender; the alvine evacuations were natural. There appeared on the front of the body, about the fiftieth day, two small swellings of a character intermediate between that of abscesses and mere boils, but nothing particular was noticed in her general symptoms coincident with their appearance. The treatment consisted, for the most part, in supplying her with the most nourishing articles of diet, and varying them so as to tempt her appetite; in the use of quinine and opium to procure her rest at night, with the occasional exhibition of purgatives: blisters and poultices were applied to the abdomen from time to time, according to the indications of pain on pressure.

On the 65th day she was observed to be jaundiced, and this tinge continued till death. One sore appeared after another, the large one on the sacrum, however, healing favourably the while; and she died, worn to a skeleton, on January 11, three months after the beginning of her illness.

Body examined fifty hours after death.—The scalp was quite dry; the brain and its membranes generally healthy, only on the right side of the pons Varolii, pushing the sixth nerve a little to one side, loose in the cavity of the arachnoid, lay a small body, about as large as an almond-kernel, looking like wet sawdust, pulpy and friable. There were no traces of increased vascularity near it; indeed, by its presence it had

emptied the small vessels lying beneath. It slightly indented the pons, and extended a short way up by the side of the right crus cerebri. The right pleura was free, the left adherent, except in the interlobular fissure; the right lung was a little emphysematous; the bronchi generally contained some pus and mucus; the heart was healthy, with about two ounces of fluid in the pericardium.

The stomach, duodenum, and jejunum, were healthy; the ileum lay low down in the hollow of the pelvis, being firmly fixed there by adhesions which united to form a cavity,* bounded behind by the rectum and sacrum, in front and above by the coils of small intestine, and below by a flooring, out of which rose the fundus of the uterus and part of the bladder: this cavity contained a few ounces of deep-grey, thin, fœtid pus; the walls were intensely livid, with flocks of fibrin and purulent matter adherent here and there. Within, the ileum was generally healthy, except that there were a few dark-grey Peyer's patches, with, however, no traces of ulceration. Beginning from about a foot above the end of the small intestines, there were a few places from which the mucous membrane appeared to have been simply punched out, the edges exhibiting no marks of any attempt at reparation. In the cæcum itself were two distinct oval apertures, about two lines in diameter, with thick rounded edges, surrounded by a good deal of injection, communicating, apparently, with the circumscribed collection of pus already noticed in the pelvis. For about its upper half, the mucous membrane of the colon was marked with ulcers like those in the ileum, as if a piece had been cleanly cut out in an elliptical form, the long axis placed transversely; but the ulcers near the cæcum were larger and of a less regular form; the solitary glands of the ileum were generally slightly enlarged; the mesenteric glands were healthy. The liver was of the colour of

* Chomel describes (Clin. Méd. Tom. i. p. 149) a similar case, where a counter-opening had formed for the discharge of the contents of the cavity through the rectum, the first perforation, in his case also, being through the cæcum.

withered leaves, wrinkled so as to bear the impression of the neighbouring hollow viscera. On section dry; the hepatic duct pervious; the gall-bladder full of dark bile. Under the microscope, the hepatic cells appeared gorged with fatty matter. The spleen, kidneys, and pancreas, were healthy; the ascending cava, femoral, portal, hæmorrhoidal, and mesenteric veins, were all found healthy.

The general outline of this case represents fever, marked during the first three weeks by great drowsiness, with symptoms referable to the abdomen. The end of this period was marked by an acute attack, of uncertain nature, from the immediate danger of which the patient was relieved, and for a fortnight more appeared to be going on favourably, (but for the disturbed state of the bowels) though very slowly. Then extreme tenderness of the abdomen, jaundice, and sloughing, are the prominent features of the gradual exhaustion which terminated in death.

Looking at the history of the case as completed by dissection, it appears most likely that the acute attack, on which the chief interest of the case turns, was coincident with the perforation of the intestines. It was not thought so at the time; the question lay between whether the rigor had relation to any faintness induced by raising her up, or whether it betokened a coming pulmonary affection, which was beginning then to manifest itself by cough. Clearly, the means of resolving this doubt, by raising her up to make a thorough examination of the chest, were not, from the nature of the doubt, available, and the sequel gives reason to be glad that such a measure was not adopted. The local affection, which by the evening had prominently manifested itself by cough, was allowed to absorb all the local treatment in the form of a large blister, and she lay quiet and warmly covered, while the intestines were contracting the adhesions which so closely circumscribed the peritonitis; the position which the intestines take in the hollow of the pelvis, in all cases of long exhaustive disease, and especially in typhus,

materially assisting this attempt at reparation. To this condition of parts, doubtless, was to be referred the extreme pain felt on pressure in the hypogastrium, and by it was explained, what was a cause of much surprise during her life, the extreme pain felt there, (arising, as was thought, from the existence of ulceration) yet withal, the so healthy and indeed solid condition of the alvine evacuations.

Where so little was left to medical treatment, merely to supply her with what she happened to fancy, or her stomach to tolerate, the feeling was perhaps rather one of curiosity, which noticed the appearance of successive symptoms. The two small abscesses were looked upon as possibly the result of phlebitis, in connection with the large sores on her back, but they passed away, and by the time of her death all morbid appearances with which such a state of things might have been connected had passed away also. But the other symptom which attracted attention, the jaundice, seemed clearly explained by the state of fatty degeneration of the liver. Is it too much to say, that a high degree of temperature, perfect rest, and a stimulant diet, continued for so long a time, had produced this change in the structure of the liver?

In the previous case (XXIII.), death resulted from an accident, namely the occurrence of pneumonia, however closely that accident may be connected with the state to which the fever had reduced the patient; cicatrization had gone on to a greater or less extent in the ulcers, and the changes which were taking place in the pleura were nothing more than the earlier steps in the formation of such a thick false membrane as may frequently be seen in patients dying years after having suffered pleurisy, of other disease. In the last, anatomy held out no such encouragement: she died of processes which had been going on steadily for weeks; and, except in the subsidence of the swelling of the mesenteric glands, and the cicatrization of the slough on her sacrum, there was not a trace of any attempt at reparation. To say nothing of the organic disease of the liver, the healthy chronic pleurisy of the former was but ill replaced by the

unhealthy peritonitis of the latter case. Yet there is great encouragement in this, even in the fatal termination of two cases: in the one, there is evidence, that but for the accidental intercurrence of pneumonia, the patient might have got over the prolonged disease, and that in her extreme state of prostration the natural powers of reparation were at work; in the other, there is the encouragement of her having struggled so long with disease of so hopeless a kind, where the natural powers of the body appear to have been quite paralysed.

The last case is worth studying in yet another point of view. It appears that perforation of the peritoneum took place in about one-seventh of Louis' fatal cases, death actually resulting from this cause*. In thirty-two examinations after death from fever at St. Bartholomew's Hospital, the peritoneum was found perforated in two cases (XVI. XXIV.): this was only just prevented by death in Case XXI., and an ulcer had eroded the mucous and muscular coats of the cæcum in Case XII., though it was fortunately situated on the attached side of the intestine, away from the peritoneum, and so opened comparatively harmlessly into the cellular tissue at the back of the abdomen. The actual perforation would seem to be nearly as common here as at Paris, but its results, accidentally, are quite of a different nature. Peritonitis from perforation, as a result of simple or tubercular ulceration, is occasionally seen in this Hospital, but as a result of fever with all its characteristic signs it is exceedingly rare, and my notes supply no illustration of the ordinary symptoms denoting such an alarming occurrence as the opening of a communication from the cavity of the bowels into that of the peritoneum in the course of fever.

One illustration is supplied by Case XXIV.—singular for the obscurity of the symptoms attending the event, the long time that the patient survived, and the spontaneous attempts made to limit the peritoneal inflammation: generally the symptoms are

* Op. cit. tom. ii. p. 325.

clear, the termination rapid, and the inflammation diffused in an extreme degree. The most striking instance that occurs, in the absence of one of my own observation, is the following, extracted from Louis' essay on the subject*.

A carpenter, aged 25, applied at La Charité, for advice, on the nineteenth day of fever: he thought his illness too slight to lay up for, but was persuaded to remain in the Hospital, where he made no complaint of pain, and was not confined to bed. "At three o'clock in the morning of the 25th day, he was seized on a sudden with extremely acute pain throughout the whole extent of the abdomen: this pain continued more or less severe, but unaccompanied by shivering, nausea, or vomiting. At eight o'clock the features were drawn, the face sad and dejected, with a yellow tinge, and an expression of pain and anxiety; eyes natural, intellect and senses untouched: the patient lay in bed motionless, through fear of increasing the pains, which were exasperated by the least movement; his appearance expressed even more than his words the intensity of his sufferings: his thirst was urgent; his tongue red and with little moisture, his teeth dry; his abdomen unable to bear the slightest pressure, but not distended: the patient felt no greater heat in that part than in the rest of the body, and drinking did not increase the pain there. The pulse was very rapid, small, and rather hard: he had a little cough." The application of thirty leeches to the abdomen procured some relief.

"At 8 P.M. he had nausea and vomiting, which lasted all night. The next morning the expression remained the same as on the day before: the surface had an almost cadaverous hue, the intellect was clear, the movements of the body a little less painful than on the previous day; the tongue red at the edges, and greenish down the middle; he had almost continual nausea, with vomiting of green bile; abdomen tympanitic, very tender, but a little less so than on the preceding day. During the night

* Recherches Anat. Pathol. p. 143.

the pain was very severe, but the next morning he had none save what was excited by pressure; the respiration and pulse were yet more hurried than on the previous day; his general expression and intellect remained as before. About noon, the patient, turning to his comrade, told him that he had not long to live, asked for some drink, and died at that very moment, in the midst of abundant vomiting of bile."

Among other lesions, a number of oval patches were to be seen all down the ileum, of a bluish-grey hue, from half to three-fourths of a line thick, and thicker the nearer the cæcum they lay. Some of these patches displayed ulcers, the edges of the smaller of which presented nothing remarkable; but the larger, from some of which the blue tint was absent, were surrounded by a narrow ring. In the centre of one such, at the distance of a foot from the cæcum, was a hole of about two lines in diameter perforating all the coats: the rest of the base of this, as of all the other ulcers, was formed by the muscular coat, which in some of them was softened.

Such is a graphic description of the symptoms to be expected in a case of this nature: they may be modified, especially by the presence of delirium, as in Case XVI., or almost suppressed, as in Case XXIV. But it is of little interest to search after all the varieties of symptoms which may denote the occurrence of a lesion so hopelessly irremediable, and one which, as generally occurring in the slighter cases, where we might least have expected it, seems as little in our power to anticipate as to cure. Instances are on record where peritonitis from perforation from other causes than fever has been for a while at least recovered from*; but, as far as I am aware, the observation of Louis remains strictly true, that there is no ground for hope after

* Med. Chir. Trans. vol. xxx., p. 51; Lancet, 1846, vol. i. p. 421. See also Dr. Stokes and Dr. Graves, on the treatment of this class of cases by opium, Dublin Journal, Vol. I. p. 125. Dublin Hospital Reports, Vol. V. p. 110.

perforation of the peritoneum in fever, though the symptoms remit, and the patient continue to live even for seven days*.

Hitherto we have taken the most unfavourable view of the abdominal symptoms in fever. But, though the mortality usually is large when this type prevails, yet there is often opportunity for depletive, even active treatment, and the results are generally good in proportion to the extent to which this treatment is employed; not, it should be understood, strictly on account of the treatment, but the general prognosis being good according to the patient's strength, the frequent adoption of depletive measures shews that that strength was presumed, at least, frequently to exist in the individual cases. The following is a most favourable illustration of this form of fever :—

CASE XXV.—*Fever, with spotted rash; the stress of the disease on the abdomen; recovery.*

Edward Roberts, aged 21; admitted Oct. 20, 1846. John front ward. Spare made; dark complexion; face dull and heavy; eyes injected; skin warm and moist; tongue moist, with a white fur on the dorsum, the tip and edges clean; pulse 88, full and soft; bowels much relaxed, with pain in the abdomen; has pain in the head and limbs, and cough, following a succession of rigors which occurred nine days back.

History.—A Welshman; in London for one year as a grocer's porter; healthy, temperate. Nine days ago he was seized with rigors, followed by heat, recurring for two or three days, and compelling him to lay up from work. Six days ago he took to his bed, and on that day was bled from the arm. For the last three days he has been delirious at times, especially at night. He is now sensible, but slow. His abdomen is slightly tender on pressure, with gurgling in the right iliac fossa. There are a few spots visible upon his skin.

* Rech. Anat. Path. p. 195.

Ordered, milk diet, with arrow root; an aromatic draught immediately; five grains of compound mercury and chalk pill thrice a day; a saline draught, with twenty minims of aromatic spirits of ammonia, every four hours; and to have a poultice applied to the abdomen.

11th day.—Quiet during the night; now conscious, but drowsy; face flushed; eyes injected; tongue rather dry, with red tip and edges; pulse 110, full and soft; bowels once open, the evacuation scanty and yellow, abdomen tender; skin hot and dry; urine coloured with bile.

Ordered to continue; to have eight leeches applied to the abdomen.

12th day.—He rambled in his sleep, now less drowsy; he vomited once this morning; tongue with a dry brown fur on the dorsum, the tip and edges clean and red; skin moist, still spotted; he has had one loose ochry evacuation from the bowels, abdomen tender and tympanitic.

Ordered to have eight leeches applied to the abdomen; to continue the pill and draught; and to take an aromatic draught immediately.

13th day.—Slept at intervals; face still flushed; eyes injected; tongue cleaner than yesterday; skin hot and dry; spots more numerous; pulse 120, full and soft; two ochry evacuations from the bowels, abdomen tense and tender; he complains of cough and great thirst.

Ordered to have eight more leeches applied to the abdomen; and to continue.

On the 14th day the same symptoms continuing, the same treatment was repeated.

The 15th day finds him with some muscular tremors, having been noisy and restless during the preceding night. Pulse 120, small and soft; tongue with a thick white fur; he had passed two loose ochry evacuations, the abdomen was hard, but not tender; skin hot and dry; the spots more distinct than ever.

Ordered to continue; to take an aromatic draught at night.

16th day.—He slept well; pulse 132, small, soft; tongue as before; two loose evacuations, one passed unconsciously; he complains much of thirst.

Ordered to have four leeches applied to the abdomen: to continue.

17th day.—Quiet at night; he passes all his evacuations in bed; abdomen a little tender; face flushed; skin hot and dry; pulse 126, fuller, soft; tongue dry in the centre, with red tip and edges.

Ordered to continue the pill; to take an aromatic draught, with tincture of opium, ten minims, to-night; to have eight more leeches applied to the abdomen.

18th day —He slept well; face flushed, anxious; pulse 132, small, soft; tongue as yesterday; two evacuations passed in bed, the last ochry, with some blood; abdomen generally tender.

Ordered to continue the pill; to repeat the aromatic draught as before; and to have a blister plaster applied to the abdomen.

19th day.—He slept quietly and well; the blister rose well; face less flushed; tongue clean and dry; pulse 108, small, soft; skin warm and moist; he has had two evacuations, only one of them passed in bed, one more copious and less ochry than before.

Ordered to continue the pill and aromatic draught.

20th day.—Good sleep; he is quite free from pain; skin moist; more abundant spotted rash; tongue moist, chapped; bowels not open; pulse 128, soft, fuller.

21st day.—Pulse 120, tongue clean, dry; skin warm and moist, with the old rash remaining on the chest, and some newly formed miliary vesicles.

On the 22d day, when his bowels were relieved, the evacuations were solid. His tongue henceforth remained moist, with a thin fur; and when, on the 27th day, he was allowed to leave the Hospital, on an opportunity for returning home presenting itself, he had nothing but weakness to complain of.

How truly satisfactory this case is. A man in whom there was no reason to suspect any previously existing disease, and temperate in his habits, is attacked with fever during the prevalence of an epidemic of an extremely adynamic type: he is treated, first, on his general symptoms, without reference being visibly made to the character of the epidemic; then, the local complication is singled out, and treated on its own indications by repeated depletion; and lastly, when the indications for depletion fail, but the symptoms are still unsubdued, a large blister plaster is applied over his abdomen, and his recovery dates in a most marked degree from that application. Such is the case as a whole; it will be worth examining in parts, to dwell on these particular periods and indications.

It has so happened, that there has not been a single patient admitted with fever during the period when most of the cases here detailed occurred, whom, setting aside all notion of the fever being of a low type, judging from the symptoms alone, whatever might have been the disease on which they depended, it would have been thought advisable to bleed from the arm. There is the more credit due to the practitioner under whose care this patient was previous to his admission, for venturing on this treatment, which appears, from the sequel of the case, to have been perfectly judicious. It is right, at the same time, to mention, that the only three patients who were said to have been bled before admission all ultimately recovered.

Diarrhœa, with ochry evacuations, and pain in the abdomen on pressure, together with a red tip and edging to the tongue, were the symptoms which called for depletion from the surface of the abdomen by leeches, which was repeated as often as the state of the pulse allowed. Attempts to check the diarrhœa, and to restore the natural secretions, by the use of mercury in the mildest form combined with opium, were also persisted in throughout; the character of the evacuations giving the indications for continuing this remedy, all minor symptoms, such as flatulence or

mere uneasy feelings in the abdomen, being quieted meanwhile by an occasional aromatic draught.

But the diarrhœa still went on: after so many applications of leeches he became exhausted, his evacuations passed unconsciously, and there arose a suspicion that they were mixed with blood. Here, certainly, were the true indications for the application of a blister plaster to the abdomen; and the result appears in the most satisfactory condition which he assumed the next day, and thenceforth till his discharge.

A blister is a remedy so frequently employed on vague indications, with the intention of rousing a patient when his condition is already hopeless, that an analysis of the effects of blisters generally would not give any very high idea of their therapeutical value. But if those cases be selected where they are employed on definite indications, as in the above, their effects are found to be as well marked as those of most other remedies. Of course it is not at once to be assumed that the same change would not have taken place without the blister; nor again, taking the other view of the case, that the same results might not have followed the earlier employment of the same means; the above is only one observation of the order of sequence, which must be frequently repeated before it can claim the consideration of the relation of cause and effect.

One more point seems worthy of attention:—The 15th day finds him with muscular tremors, after having passed a noisy, restless night. Here was one sign which commonly indicates great exhaustion; but there were not all its signs, and it did not appear worth while, for that one symptom, to change entirely the plan of treatment. Fortunately, there was no necessity for more leeches to the abdomen at that time; but the next day—when the tongue still remained furred, and had not become dry and black, as might have been feared from that one sign—depletion was again required by his other symptoms, and again employed with advantage. Were not these muscular tremors indicative rather of irritation of the bowels than of debility?

In this patient there was plenty of power to allow of the abdominal complication being so treated. The following case illustrates the same complication occurring under much less favourable circumstances.

Case XXVI.—*Fever, with papular rash; stress of the disease on the abdomen; recovery.*

Case XXVI.—Christopher Goddard, aged about 35; admitted April 1846. John front ward. A stoutly made man: was admitted for palpitation of the heart, with some cough and glairy mucous expectoration. He had a diastolic, and sometimes a systolic murmur at the base of the heart; the latter in the track of the aorta, the former in that of the pulmonary artery. He remained in the ward, more an object of curiosity than of especial interest, till May 15th, when, having had a rigor the previous night, he complained of headache. The following night he passed without sleep, and now—

May 16th, he lies in bed with a flushed face; skin hot and moist; pulse 108, small and soft; tongue moist, furred, with a central streak; bowels twice relaxed, abdomen tender on pressure. He has pain in his head and limbs, with thirst, nausea, and vertigo.

Ordered, mercury and chalk, two grains and a half, twice a day; a saline draught every four hours; to have eight leeches applied to the abdomen.

4th day.—Little sleep; eyes suffused; skin hot and perspiring, with abundant papular rash, which seems to have been indistinctly marked yesterday; tongue rather dry, coated at the sides, the tip red, and a broad red streak down the centre; pulse 104, full, soft, thrilling; three rather scanty evacuations from the bowels; urine scanty, high coloured. He has still headache, with pain in the throat and epigastrium.

Ordered to continue.

5th day.—Sleep prevented by pain in the head and back;

face flushed, eyes suffused; skin warm, profusely perspiring; the rash has extended over the face, as also over the lower extremities; tongue with a thin moist fur; three loose ochry evacuations, abdomen tolerant of pressure.

Ordered to continue; to have a poultice applied to the abdomen; to take arrow-root for food.

6th day.—He expresses himself as much easier, complaining only of a little pain down the sternum; skin warm and moist; the rash fading on the trunk, but more distinct on the feet; there is much less flushing of the face and suffusion of the eyes; a little ecchymosis is to be seen beneath the left conjunctiva. Pulse 120, small, soft; tongue clean and dry down the centre, a moist fur with prominent papillæ along the sides; bowels much relaxed, the evacuations light yellow, curdy-looking.

Ordered, an aromatic draught immediately; compound ipecacuanha powder, five grains, to-night; a saline draught, with twenty minims of aromatic spirits of ammonia, every four hours.

7th day.—Good sleep; appetite returning; says that he feels at ease; tongue moist, almost clean, with prominent papillæ; pulse 120, small and soft; the rash appears as small, very distinct papulæ upon the hands; four ochry evacuations from the bowels. He is deaf, and has almost lost his voice.

Ordered to repeat the same treatment as yesterday.

8th day.—Little sleep, from pain in the epigastrium; bowels open once, abdomen tolerant of pressure; tongue dry in the centre, almost clean; pulse 112, small and soft.

Ordered, six ounces of wine; beef, for tea, one pound; compound mercury and chalk pill, five grains, twice a day.

9th day.—He lies on his back, quite deaf, and exceedingly anxious about himself; pulse 120, small and soft; skin warm and perspiring; two light-coloured, liquid evacuations, abdomen tender; tongue still dry.

Ordered, an aromatic draught at once; to have a blister plaster applied to the abdomen, and to continue.

10th day.—He is so deaf and nervously anxious that it is difficult to communicate with him. He says he feels as if he had some one else's body. Tongue dry, with a broad brown streak down the centre, elsewhere clean; skin hot, dry; the rash less readily fading on pressure; pulse 138, small and soft; he has passed one copious, loose, fæcal evacuation.

Ordered to continue; to have a poultice applied to the abdomen, and to increase the daily amount of wine to ten ounces.

11th day.—He had three hours' sleep after midnight; since then he has lain in a stupid, irritable state; pulse 140, fuller, soft; tongue dry in the centre, the tip and edges moist; two relaxed motions, abdomen much distended.

Ordered, an aromatic draught immediately; to continue the draught which he has been taking before, and the wine.

12th day.—Deaf, incoherent, and obstinate; face and eyes flushed, expression anxious; pulse 132, small, soft; bowels profusely relaxed, evacuations green, abdomen tolerant of pressure; tongue dry, with a thicker fur; skin warm and dry, with the same rash.

Ordered, an aromatic draught, with five minims of tincture of opium, at once; and ten minims of compound spirits of sulphuric ether, every four hours, continuing the wine.

13th day.—He is occasionally noisy and delirious, but now lies quietly on his back, with irregular, hurried respiration (42); face still flushed and anxious; pulse 116, again fuller, but very soft; skin hot and moist, with less distinct rash; tongue dry; five relaxed, greenish motions, two passed unconsciously, which he attributes to the second individual whom he still supposes himself to be.

Ordered to repeat the treatment of yesterday; to take two

grains and a half of compound ipecacuanha powder every four hours.

14th day.—Noisy till 2 A.M., then had half an hour's comfortable sleep; pulse 96, soft and full; respirations 26, calm and regular; tongue dry, with a chapped crust on the dorsum, a thin, moist, white fur running down the sides; skin cool and dry, the rash gone; no vesicles apparent.

Ordered to continue; to take five grains of compound ipecacuanha powder to-night.

15th day.—He slept well; he lies moaning loudly at times, deaf, and hardly conscious; tongue readily drying; skin hot and perspiring; pulse 92, full, with more power; he has had two evacuations from the bowels, one passed unconsciously, green, with lumps of fæcal matter, abdomen tense and tender.

Ordered an aromatic draught, with fifteen minims of compound spirits of sulphuric ether, and five minims of tincture of opium, every six hours; to have a blister plaster applied to the abdomen.

16th day.—The blister rose well, and he had good sleep, only moaning at times; he lies on his back, deaf, but a little more conscious; respirations 22; pulse 84, smaller, soft; tongue clean and dry; skin warm, moist; bowels not open, abdomen flat; he has some return of appetite.

Ordered to continue; the quantity of wine taken daily to be diminished to four ounces.

17th day.—Slept well; tongue dry in the centre, the edges clean and moist; pulse 84, small and soft; respirations 27, easy. He is still deaf, and somewhat incoherent, but no longer suffers the flies to crawl unnoticed over his face.

The note of the twentieth day states that he is lying easily on his side, with a clean moist tongue, all the bodily functions being performed regularly; and during the rest of his stay in the Hospital, the only thing particularly to be noticed was, that the diastolic murmur which had so long been overlooked during his illness, remained the same as on admission.

There seems no reason to doubt that the lesion in these two cases was identical, ulceration (if we may suppose that the local disease had gone so far) of the bowels. Let us look at the difference of the treatment. In the last case, till the eleventh day, this mainly consists in the use of aromatic draughts, directed to allay particular symptoms of uneasiness, and mild mercurials. Then, the evacuations having lost their ochry character, this mode of treatment was no longer pursued, but the diarrhœa was attempted to be kept in check by opium, while he was supported by stimulants. When his abdomen became tense and tender, and he seemed, though unconscious of what was going on around him, to be suffering a good deal of distress in it, on two occasions a blister plaster was applied, and on the last occasion with as good effect as in the previous case, albeit subject to the same fallacy, that the favourable change might have been independent of the remedy. The perusal of the case shows why it would not have been safe to treat this patient in the same way as the previous one; how, though the disease on which the symptoms depend may be the same in any two cases, yet a hot and dry skin, with a moist, furred tongue, allow quite a different line of treatment to what is offered by a dry tongue and a hot perspiring skin, and generally with a much better prospect of success.

These two cases have been purposely selected frem the practice of the same physician, to illustrate the necessity of considering each case of fever as a study in itself; that neither is all fever to be treated according to one unvarying rule, nor yet the same complication always by the same means, but each symptom as it arises by its appropriate remedy, due regard always being paid to the prevailing tendency of the epidemic, as shown in cases occurring at the same time.

The last point to be noticed besides the curious hallucination of double consciousness displayed by this patient, is a circumstance apparently trivial—the fact of his being on the seventeenth day sensible of the flies crawling over his face. How much for

evil may be told of the condition of a patient, without asking a single question, by merely observing that he lies low in bed, and that the flies crawl unnoticed across his face; how much for good by the fact that he has turned himself on his side, or that a sensation, even of pain may be, has lighted up with a momentary gleam of intelligence his dusky and apathetic face after deep and long-continued stupor; or that the busy wandering mind has awoke from its feverish dreams of life and health to the full perception of the painful realities of a bed of sickness. "There is an aspect about the patient, an expression not in his countenance only, but in his attitude, in the manner in which he lies and moves, being, in fact, the general result, as well as the outward expression of the collective internal diseased states, that [speak] to the experienced eye*." A change in such signs as these for good or for ill may be detected, when the indications which we more usually and certainly rely upon altogether fail us.

* Dr. S. Smith on Fever, p. 392.

CHAPTER VII.

AFFECTIONS OF THE SPLEEN: LIVER.—PASSIVE HÆMORRHAGE.—CHANGES OF THE BLOOD; EXPLANATORY OF OBSCURE CASES WITH SEVERE SYMPTOMS.

We have spoken of fever thus far as affecting locally the brain, the lungs, and the intestines. Other organs than these may be found diseased on dissection, and the nature of the lesion leave no doubt that the action is recent, and correctly referable to fever as its cause; but as these changes are either not common, or not appreciable by any symptoms certain and capable of being treated during life, or not important, they can scarcely be used as a basis for any further classification of fever. The affections of the spleen and the liver, with the changes of the blood, seem, however, to require particular mention.

The spleen is more frequently affected in fever, perhaps, than any other organ, and that its enlargement and softening under these circumstances are closely connected with fever, is proved by the much greater frequency of such appearances in patients dying from fever, than from any other disease. But all links that might connect them certainly with any of the lesions of the intestines, or other organs, are wanting. We must remain content merely to record these changes, which pathology would incline us to believe are as unimportant, as regards the issue of the case, as they are difficult of detection during life. Rupture of the spleen, the accident to which its soft swollen condition would seem to render it most liable, is mentioned by Andral* as having occurred in one of his patients, apparently as the

* Clin. Méd. i. p. 571, 4me éd.

result of a fall on the floor,—just as the liver is sometimes ruptured in consequence of a fall in a healthy person; and Dr. Bennett* noticed softening of a yellow deposit in this organ, causing fatal inflammation, by rupture into the peritoneum, in two cases of fever: but instances where death has resulted, however indirectly, from disease of the spleen in fever, are very rare.

Affections of the liver, abstractedly considered, might be expected to be of more importance, and its signs are manifest enough; but then it is not often met with, and there is a source of fallacy, in the fact that jaundice, on the appearance of which the diagnosis must mainly rest, may arise from many causes. There is little opportunity of learning, in such a case, the usual habits of the patient as to the amount to which his liver ordinarily sympathises with any constitutional disturbance; and thus it may often happen that the jaundice is the peculiarity of the individual, and not of the present disease. The following is an example of this affection, open to the fallacy above mentioned, but deserving the more attention, inasmuch as, about the same time, more than one case of that, here, extremely rare disease, acute inflammation of the liver, occurred in the Hospital, and as it appears that jaundice was a common symptom in a form of fever, observed in Scotland, analogous to that which was prevailing at the time when the case occurred. In the epidemic observed in London in 1847, however, the jaundiced cases were not sufficiently numerous to claim separate consideration. The following is introduced here as displaying the general features of a case of this sort in connection with the changes in the liver.

CASE XXVII.—*Fever without rash; jaundice; death on the 16th day; dissection.*

Mary Morris, aged 68, admitted May 1, 1847. Hope back ward. Middle stature, thin, face anxious, tongue dry, and marked with a brown fur; pulse 102, small and soft; skin warm

* Monthly Journal, Oct. 1847, p. 300.

and perspiring, without rash; bowels relaxed from medicine, abdomen tolerant of pressure. Has general pains in the limbs of four days' duration.

History.—A nurse in the Hospital; generally healthy, but had a somewhat similar attack five years ago. Four days ago, after some hard and rather disgusting work, she had shivering and vomiting; since then she has had no sleep, and has been delirious, suffering from pains in the limbs and a feeling of great debility.

Ordered to take four ounces of wine daily, with a saline draught and camphor mixture every eight hours.

6th day.—Very little sleep, rather delirious during the night; tongue as yesterday; skin hot and perspiring; three relaxed motions from the bowels; abdomen hard, but not tender.

Ordered four grains of sesquicarbonate of ammonia, with twenty minims of tincture of hyoscyamus, thrice a day.

7th day.—She is incoherent. The skin and conjunctiva are deeply jaundiced; pulse 84, small and soft; three relaxed motions from the bowels, one with much slime.

Ordered to continue; to take five grains of compound mercury and chalk pill every night, and to have two pounds of beef, for tea.

8th day.—She slept till 4 A.M.: is still rather incoherent; skin warm and dry, still jaundiced; bowels not open, right hypochondrium a little tender; tongue black, not quite so dry; pulse 84, small and soft.

Ordered to continue.

9th day.—Slept well; face flushed, less jaundiced; skin warm and moist; tongue as before; pulse 84, small and soft.

On the 11th day the fur was scaling off her tongue; on the 12th the jaundice had disappeared; her tongue was moist and cleaner; but all this time she was getting weaker, and the gradually increased amount of stimulants did not materially alter her condition. The note of the 16th day says:—She has been gradually sinking. Last night she was restless, trying to get out of bed, and, having all along expressed a certain conviction

that she should die, now talked of going home; tongue dry, chapped, and black; respirations 42; pulse 120, very small and soft. She died a few hours after this note had been taken.

The body was examined twenty hours after death, without detecting any disease in the several organs examined, more than the following:—the liver was pale, small, but apparently healthy; the larger bile passages quite pervious; the spleen was large, and contained some soft, yellow, apparently encysted deposits; the uterus contained a cellular mass, about as large as a chesnut, growing from near the fundus, and filled with a glairy fluid. The kidneys joined in the horse-shoe form at their lower ends; their structure was healthy.

Of six cases in which the symptoms of jaundice appeared, four proved fatal. (Cases I. XXIV. XXVII. and another not here detailed.) In Case I. the liver was healthy; in XXIV. it was in a state of fatty degeneration; in XXVII. it was small and pale, as noticed in the Scotch epidemic, and in the epidemic of yellow fever at Gibraltar described by Louis,* and in the other case no examination was allowed. The conclusion from this limited number of dissections would be, that jaundice in fever depends on no uniform lesion, and has no specific connection with fever; and the symptoms observed during life would lead to the same inference, though the larger mortality among cases of this sort would make one hesitate to entertain such an opinion apart from the evidence of dissection.

Apparently the affection of the liver had little to do with the fatal termination of this case, any further than as the addition of disease of one other organ may have increased the exhaustion which was the symptom under which she sank at last. For before her death the symptoms referable to her liver had all subsided, and nothing appeared on dissection to explain them, beyond the small size and paleness of this organ, which seemed as if it

* Transl. by Dr. Shattuck, pp. 117 et seq.

might have been gorged with blood or bile at some recent period, but exhibited no visible changes of structure, such as to lead one to suspect that the case had been wrongly interpreted, and that the disease had been simply inflammation of the liver after all. The mention of a doubt as to the real nature of a case may serve again to put in a prominent light the occasional uncertainty of the line which separates fevers from other diseases;—how our opinions of the nature of a case are constantly liable to be corrected, either during life or after death, and how fever, as a class, receives many cases simply because we do not know what else they can be called;—a class which, little though the treatment may depend on any specific nosological difference, it is for the best interests of medicine to reduce within the narrowest possible limits, and for us to be aware when we are trenching on those limits.

The importance of all the affections of the heart in fever can scarcely be too highly rated, and their consideration, as studied in the force or frequency of the heart's action, either at the wrist or in the cardiac region, by the hand or the ear, forms part of the daily examination of each patient. Particular cases have presented no peculiarities sufficient to justify any lengthened dwelling on them here, only it may be remarked generally that organic disease of the heart, like that of the liver, or especially that of the kidneys, renders the prognosis in any case extremely doubtful. As to the blood;—the consideration of the changes produced by fever in this fluid, and of the reaction of this altered condition on the system at large, might seem to belong more properly to the chapter on the Morbid Poison of Fever. But as there is here a link appreciable to the senses between the morbid poison and death, this part of the subject has been deferred till the present, after the consideration of the various organic lesions, to which, themselves originally produced by the action of the morbid poison through the blood, it seems impossible to deny, in the further progress of the disease, a large

share in inducing or maintaining those changes which the following cases are designed to illustrate.

It seems necessary to recognise, besides the particular lesions which might be met with, or supposed to exist in these individual cases, a something which they have all in common, namely a change in the composition or other physical properties of the blood. It may be that the changes discoverable by analysis are not really the important ones, but the frequent recurrence of the same alterations in its physical qualities, in its colour, and power of coagulation for instance, should make one look out for and endeavour to obviate all those influences which experience in other forms of disease both shews to be capable of producing such deviations from the healthy condition of the blood, and at the same time speaks unhesitatingly of the danger to be apprehended from them. And this, perhaps, is as far as the knowledge of these changes can assist practice, for it is too much to expect that any medicaments that we can give shall have the power, within the short time allowed for the treatment of fever, of restoring to the blood, by their own addition, its exact chemical composition, were it even certain that the quantitative changes discoverable by analysis were those on which life and death at present hung, did we dare to employ bloodletting for the purpose of ascertaining their exact amount, as a necessary preliminary towards readjusting them, or calculate, as a basis of any further proceedings, that, amid this disturbance of all the functions, the relations of the material to the moving power were the same as we presumed them to be in health. The object should rather be to excite or resist an action, as the case may require, and the time allow, generally,—not to attempt to assist nature in detail. For if at last this happy adjustment should be obtained, how could we certainly attribute to our art, rather than to the natural course of events, an effect which the next cases that came under observation might show to be no constant result of our artificially applied causes?

In the occasional absence of all organic lesions capable of explaining the symptoms of fever, pathologists have long turned

their attention to the blood, as the seat of the essential changes in this disease; and some of these deviations from the normal standard, chemistry has reduced to definite formulæ*. But such accuracy is rarely attainable, and where we have no blood at command till after death, we must be content with facts, of looser signification, may be, in themselves, but clearly showing in what way the disease has a tendency to destroy life. For all practical purposes, in fever, such as it exists at present, we must be content to forego any information concerning the exact proportion of the different constituents of the blood: and, even had we the blood to operate on, the operations necessary for ascertaining any thing beyond the most general outline, as below, are too long and difficult to be undertaken, with any hope of obtaining a trustworthy result, by any but those who have made this subject their especial study.

But, leaving this, there are facts accessible to all in the observation of the loss of power of coagulation and altered colour of the blood, which cannot be without importance. There are few diseases after death from which the blood has not been found fluid in some cases, but on examination of a large number of observations of this nature they will be found to belong chiefly to two classes, of which bronchial obstruction and purpura, with fever, may be taken respectively as the types. Why the blood should be found not coagulated after death from the former, is, I think, satisfactorily explained on the supposition that it is all venous; this hypothesis resting on a collection of facts, relative to the rupture of aneurisms and wounds of veins, scattered through various authors or from original notes of such cases; agreeing with the observations of M. Garengeot,† that venous blood does not coagulate even after a long time, when extravasated within the body, as arterial bood almost invariably and speedily does; and of Dr. Polli,‡ that the coagulation of blood takes place more rapidly as there are greater facilities for the discharge of the

* Simon, Med. Chem. Bd., ii. ss. 185, 215.

† Mémoires de l'Academie de Chirurgie, Tome ii. 8vo. edit.

‡ Paget's Report: Brit. and For. Med. Rev. No. xxxiii.

carbonic acid, the saturation with which is one of the chief characteristics of venous blood, and which could only pass off with great difficulty from blood contained in the vessels or cavities of the body.

This explanation, however, will hardly apply to the non-coagulation of the blood in the class of diseases of which purpura is the type. Here it would seem that there is some disease of the blood; that, with other changes, the fibrin is altered in its qualities, or diminished in quantity, or both. My own observations made on the blood, in cases of purpura and scorbutus, would favour the belief that the quality of the fibrin is that which is chiefly affected, but though from the mode of investigation the quantity of fibrin was much more likely to be under than overrated, I put them forward with great diffidence, as differing in this respect so essentially from the observations of MM. Andral and Gavarret.* Perhaps their observations were made on severer cases; the blood on which I experimented was drawn from patients who had at least a sharp pulse as an indication for depletion.

Disease.	Water.	Fibrin.	Colouring Matter.	Albumen.	Salts.
1 Purpura, with Hæmatemesis	806.28	4.12	102.64	81.60	5.36
2 Purpura with Albuminuria.....	864.20	6.02	56.30	68.06	5.41
3 Hæmatemesis	804.09	2.09	109.76	79.05	5.00
4 Purpura urticans—Phthisis	806.90	3.06	99.13	86.20	4.71
5 Scorbutus	832.75	4.24	69.93	93.08	
6 Purpura, Case xxviii.	783.53	2.28	55.88	160.59	
Healthy Standard (from Turner's Chemistry, p. 1192, 7th edition).	782.86	2.83	126.31	75.08	9.59

* Hæmatologie, 12mo. Bruxelles, pp. 109, 111.

That this tendency to hæmorrhage, characterising purpura and its kind, and this equally characteristic want of power of coagulation of the blood, depend on a diseased condition of that fluid, may readily be admitted; but whether the disease be connected essentially with the changes in the quantities of its elements or in their qualities, is still a question.

The other very sensible and obvious change in the blood is that of colour, as observable in the blood itself after death, or in the dusky aspect of the patient during life, of which I have no particular illustration to offer, besides the notices of such a condition in the cases already narrated. Now, without taking up the popular horror at the idea of black blood circulating in the body, the fact of the colour being darker in one class of diseases than another is very important to be noticed. It is dark, and the patient is dusky, in those classes of disease in which it does not coagulate; and in the first class, namely that of bronchial obstruction, for the same reason. But in the last class there would seem to be some agency at work preventing the usual influence of atmospheric air upon it. This impediment is not explained by any examination of the lungs, as they may appear free both to the ear during life and to the less delicate test of dissection after death. Nor is it explained by what organic chemistry can tell of the state of the blood; this fluid is not radically altered, nor is it so concentrated that the oxygen of the air cannot act upon it; on the contrary, it contains considerably more than the standard quantity of water. It is the first appreciable result of the action of the morbid poison, whose effects we can see and dread, but whose essence vital chemistry alone can lay open to us—whose tests are not be sought in the reagents of the laboratory, but in the actions of the living body.

The three cases next following are intended to illustrate these conditions. In the first the diseased condition of the blood was ascertained by analysis previous to the commencement of fever; the loss of power of coagulation is set out in the narration of the two others, with the fatal termination of which this condition of the blood seemed to stand in close connection.

CASE XXVIII.—*Fever, with mottled rash, supervening on purpura; convalescence.*

Cristoforo Vorachi, aged 21, admitted April 9th, 1846. John front ward. A healthy-looking man: arrived in London seven weeks ago from Parma. A week after his arrival, his legs swelled; he suffered repeated alternations of heat and cold, and a number of purple spots appeared on his lower limbs. The swelling has now subsided, but the spots still remain, of a deep purple colour, not fading on pressure, slightly elevated, and generally first appearing towards evening.

He was treated by purgatives, with apparently good effect. A large crop of fresh spots appearing on April 20th, with some swelling and pain of the left wrist, and increased power of the pulse, he was bled to twelve ounces.

The blood on analysis gave, in 1000 parts—

Water	783.53
Colouring matter	55.88
Fibrin	2.28
Albumen, Salts } of the serum	160.59
	1002.28

The coagulum was of a moderate size, and soft; the fibrin, when separated, particularly soft. The serum was opaque and milky-looking.

He continued without any very marked change taking place, his legs swelling, and the spots re-appearing as often as he assumed the upright position, till May 7th, when, having had no sleep the previous night from pain in the head and neck, he complained of pain in the bowels, and purging to an unusual degree following the medicine which he was in the habit of taking. Tongue moist and furred, with elevated papillæ; pulse 120, rather sharp.

Ordered, an effervescing draught every six hours; to take rice-milk diet.

3d day.—His face is flushed; skin hot and perspiring; pulse 128, still sharp; tongue moist and furred, the tip and edges clean and red. He still complains of pain in the head and abdomen.

Ordered a saline draught, with half a drachm of antimonial wine, every six hours.

4th day.—Increased pain in the abdomen, bowels once open; a mottled rash appearing on the chest.

Ordered to have eight leeches applied to the abdomen; to take a saline draught, with camphor mixture, every four hours.

5th day.—Generally much the same, his chief complaint being of the want of sleep.

Continue.

6th day.—Sleeps very little; face flushed; skin pungently hot, with a distinct mottled rash, fading on pressure; tongue moist and furred; pulse 120, with less power; bowels once slightly open; he has heat, without pain of the head.

Ordered to continue; to take half an ounce of castor oil.

7th day.—Better sleep; face less flushed; tongue moist, less furred; bowels open three times; pulse 130, fuller; he is quite free from pain.

On the 8th day, a few purpurous spots appearing, and the pulse still increasing in frequency, he was ordered two pounds of beef for tea, and six ounces of wine daily.

On the 9th day, the state of debility which it had been thus attempted to forestall, made its appearance. He lay quiet during the night, but is now moaning incoherently; skin pungently hot; tongue inclined to dry, furred on the dorsum, the tip red; pulse 130, as before; bowels twice open, abdomen flat, free from pain.

Ordered to continue.

11th day.—He remains in much the same condition as yesterday, namely,—tongue with an uniform brown fur, inclined to dry; pulse 130, soft; bowels open once a day, abdomen tender in the right iliac fossa; his face is flushed, his skin hot and dry.

Ordered to take two grains and a half of mercury with chalk twice daily; to continue the other treatment.

12th day.—Better sleep; skin warm, dry, soft; the mottling does not fade on pressure, and there are many large petechiæ on the abdomen and flanks; pulse 120, small and soft; he has had three relaxed bilious evacuations.

Ordered to leave off the pill; to continue the rest.

13th day.—Slept well, waking up once however, much frightened; he lies dull and drowsy; pulse variable, 108—120, small and soft; tongue with a broad brown streak; four relaxed ochry motions, abdomen tolerant.

Ordered two grains and a half of compound ipecacuanha powder thrice daily.

The notes of the three next days speak of him as sleeping quietly; the rash gradually fading; his bowels slightly relaxed, with pain ni his abdomen; his face dusky and anxious, with, to-day, a slight cough; the same general plan of treatment having been continued.

17th day.—A blister plaster applied to the epigastrium yesterday has drawn well; he has had good sleep; pulse less frequent, 90, small and soft; three slimy bilious evacuations. He has still cough, with mucous expectoration.

19th day.—Face natural; tongue moist, with a thin fur; pulse 108, small and soft; skin warm and moist, with a few miliary vesicles; no complaint of cough.

He remained under observation till the latter part of July, liable at times, during this period, to slight occasional eruptions of purpurous spots, but not otherwise out of health.

It is probable that the same condition of blood persisted more or less during the whole time that this patient remained under observation, inasmuch as the same tendency to the formation of purpurous blotches continued, though the most striking characteristic—the enormous amount of solid contents in the serum—

should perhaps be set down to the same temporary cause as its milky colour. As the analysis was conducted with large quantities, the limits of error in the process were but small.

How far did this condition of the blood modify the symptoms, or the knowledge of it the treatment, of the disease? As to the symptoms,—the visible signs of purpura intermixed themselves with those of ordinary continued fever, in the form of petechiæ, which, it should be remarked, have been noticed only three times out of fifty-three cases occurring during the last year; in no other respect was the case singular. But the knowledge, not to say of the condition of the blood, but of the diathesis of which this formed a part, constituted a very important part of the treatment. It cautioned against any free use of mercury; it led to expect early prostration of strength; but while it warned against any active depleting measures, it taught to consider of less grave importance the eruption of petechiæ, which there was a cause independent of the fever tending to produce.

The next patient fell ill when weakened by previous illness and existing organic disease, accompanied by a tendency to hæmorrhage, which accidentally terminated his life. The case possesses additional interest from the peculiar condition of the kidneys discovered after death, in connection with the previous history.

CASE XXIX. — *Fever, with mottled rash; albuminuria; death by hæmorrhage into the bronchi; dissection.*

Henry Bowman, aged 31, admitted Feb. 9th, 1844. John front ward. Stoutly made, with a hurried, anxious expression; face flushed; tongue large, pale, and flabby, with a brownish-white fur on the dorsum; gums sore, with mercurial fœtor; pulse 100, small; respirations 36, hurried; bowels regularly open, the last evacuation solid, mixed with blood; has headache and pain in the loins of five days' duration.

History.—A type-founder, married, temperate, healthy till eighteen months ago, when he had scarlatina, which laid him up for five weeks. Since then he has suffered much from general muscular debility, with pain in the loins and sacrum, and occasional diarrhœa with bloody evacuations. Three months ago he came under medical care, with anasarca and slight ascites, the urine being very albuminous. Under the use of digitalis with preparations of iron, after cupping and the employment of mercury, the anasarca disappeared, and the urine ceased, on Dec. 17th, to contain albumen. He improved rapidly in health and strength till five days ago, when the pain in the loins suddenly returned, with headache, watering of the eyes, and vomiting.

Ordered, aromatic spirits of ammonia, half a drachm, every six hours, and half an ounce of castor oil to-morrow morning.

7th day.—No sleep from pain in the eyes; skin warm, perspiring; tongue moist, as before; pulse 100, soft; four liquid evacuations from the bowels, with much mucus; urine copious, sooty, with a dark sediment, albuminous.

Ordered to take six ounces of wine daily; to continue the draught.

8th day.—No sleep from vomiting and purging; motions loose, bilious; the abdomen tolerant of pressure; less pain over the eyes; tongue dry and brown in the centre, the edges moist; pulse 100, fuller, soft; urine as before. It is stated that the urine was never sooty before yesterday.

Ordered to continue; to take at once an aromatic draught, with ten minims of tincture of opium; and five grains of compound ipecacuanha powder every eight hours.

9th day.—He was sleepless and delirious during the night, and now he is not quite coherent; the vomiting has not returned, and he has only had one evacuation from the bowels, that one loose and mucous; skin hot and dry, with a red, mottled rash on the chest and abdomen; pulse 120, still full, soft; urine almost

black from blood, spec. grav. 1016; some pain over the eyes is still complained of.

Ordered to have his head shaved, and to have cold lotion applied to it; to have a blister applied to the epigastrium; to continue the draught; to take the compound ipecacuanha powder twice a day.

10th day.—He had about one hour's sleep during the night; now his lips tremble, his speech is incoherent and querulous; tongue tremulous, dry, with a broad, dark streak down the centre; pulse 108, small, and soft; bowels not open, abdomen soft and tolerant.

Ordered to continue.

11th day.—He had a little broken sleep; his face is flushed, his expression anxious, but his speech, though still incoherent, is not so urgently querulous as before; pulse 120, small, soft, undulating; tongue dry, transversely fissured; bowels not open; urine still deposits a heavy sediment, spec. grav. 1014, albuminous.

That night he slept well, and appeared in all respects improved on the following day. During the ensuing night he was restless, and on the thirteenth morning had a slight convulsive attack about 7 A.M., during which he lost consciousness for nearly ten minutes. About 9 A.M. he commenced coughing, occasionally expectorating a little blood with difficulty, and continued doing so, at intervals, for an hour, talking rationally to his wife the while; then he had another slight convulsive struggle, and died immediately. His urine, it should be observed, had been less abundant during the last forty-eight hours.

Body examined, four hours after death.—Limbs rigid; blood all fluid; integuments of the head and neck much congested. Brain in all respects quite healthy. Larynx healthy; trachea lined with treacle-like strings of bloody mucus, which extended into the bronchi, and, thus obstructing them, prevented the lungs from collapsing. In other respects the right lung and the lower lobe of the left were healthy, but the left

upper lobe was dark, harder than the rest of the lungs, though still elastic, and so gorged with blood as but just to float in water; no distinct centre of extravasation, however, was to be seen on section of it. The bronchi of this part were filled with fluid frothy blood. The heart presented traces of old pericarditis, and some trifling thickening of the edges of contact of the aortic valves. The œsophagus was healthy; the stomach injected, and coated with thick mucus; a thin friable coat of mucus was spread over the interior of the jejunum and ascending colon. There were some dark patches in the jejunum, a few vivid red spots with dark green centres, as if from sloughing, in the cæcum, and a few vascular points in the descending colon. Otherwise the mucous membrane of the intestines was quite healthy. The liver was large, and in a state of biliary congestion; the gall bladder full of thick tarry bile. The spleen was large and soft.

The kidneys were very large, measuring six inches and a half in length, dark, mottled with a yet deeper red, the capsule parting easily. Within, the organ was of a deep claret colour, pyramids and cortex alike, a deeper-coloured fringe surrounding the bases of the pyramids. The cortex was no where more than a quarter of an inch, generally not more than one-eighth of an inch, in thickness. It was a little more friable than natural, the fracture clean, and no exudation taking place into the fissure. The appearance of the kidney was very similar to that so beautifully figured by Dr. Bright*, only of a claret instead of the chocolate colour which the plate represents. The pelvis of the kidneys and the urinary bladder were quite healthy. Under the microscope all the urinary tubes appeared gorged with blood. There was no deposit of any kind in the substance of the organ.

The sum of the morbid changes in the above case was,—a little injection of parts of the alimentary canal, with proof, by

* Medical Reports, Vol. i. Plate 5.

the presence of a large quantity of mucus, that the injection was not the result simply of gravitation. There was old disease of the kidneys, and biliary congestion of the liver, and there was a large, soft spleen. Besides, there was extreme congestion of part of the lungs, and obstruction of the bronchi. In connection with these changes stand the vomiting and purging, and, with the last of them, death by apnœa.

But there is more to be explained, on which the morbid anatomy throws no light:—the various symptoms, whether referable to the nervous system directly, or to the constitution at large, which make up continued fever. Even had an opportunity for analyzing the blood offered itself, it could not have been safely concluded that its abnormal composition—had such been ascertained to exist—was connected with the presence of fever, when the old standing renal disease, and the mercurial affection, would have both tended to vitiate such an inference. Nevertheless, in the absence of any morbid changes strictly characteristic of spotted fever, it appears of use to consider this case as illustrating its pathology in the two particulars considered in the previous case,—what influence did the knowledge of the existence of causes capable of modifying the condition of the blood exercise on the treatment; what their presumed effects on the result of the case.

As to the first:—the knowledge of these facts only caused greater watchfulness. There was room for little else but to support him, and to calm the excited state of his nervous system, which resembled more the condition of delirium tremens, or nervous excitement after protracted lactation in a female, than the dull apathetic condition usually seen during the early days of fever. As to the second:—therein lay the cause, both of his death,—though, to judge from the similar result in one of Rayer's cases *, this might seem possibly to be connected with the renal disease—and of the above anomalous symptoms of nervous excitement. In a previous case (III.) the unfavourable

* Des Maladies des Reins, Tome ii. p. 204.

character which old organic disease of the liver gives to fever has been illustrated; the present illustrates that arising from disease of the kidney, albeit modified by so many other influences that there is danger of attributing the effects to the wrong causes, all tending, however, to alter the composition of the blood, the effects of which alterations it is the present object more particularly to illustrate.

In the case last detailed, death resulted from an accident connected apparently with some morbid condition of the blood. The following is added,—perhaps rather at the risk of giving too unfavourable an impression of the results of cases of fever generally,—to exemplify what may be considered as the more natural effect of such a state of things.

CASE XXX.—*Fever, fatal by exhaustion from hæmorrhage on the twenty-fourth day; ulceration of the bowels.*

Thomas Sill, aged 16, admitted Nov. 1st, 1846. Luke front ward. Slightly made; face generally pale, with flushed cheeks; tongue inclined to dry, tip and edges red; skin warm and perspiring; pulse 108, soft and full; bowels relaxed, seven evacuations of a brownish-black colour, passed this morning. The lips, which are dry and chapped, are constantly bleeding, and blood is oozing from the nostrils. He has weakness, chilliness, and pain in the abdomen, with occasional delirium, of about twenty days' duration.

History.—He is a baker; three weeks ago he was laid up for a day, feeling weak and chilly, but the next day was able to resume his work. He continued extremely weak, and ten days ago was compelled again to give up his work in part on this account; but he had nothing else to complain of till three days since, when he was seized with diarrhœa and was delirious at night; this morning his nose began to bleed, to which last occurrence he has been particularly liable during the last three years.

He was ordered four ounces of wine and a pound of beef, for tea, daily; to have an opium enema at once, and to take two grains and a half of compound ipecacuanha powder thrice a day.

22nd day.—He was restless during the first part of the night, now he is dull; pulse 120, small and soft; bowels less relaxed, evacuations dark-coloured, abdomen tense and tender; skin warm and perspiring. There is a constant oozing of blood from the lips. A considerable quantity of dark-coloured urine was drawn off from his bladder by the catheter.

Ordered, wine, six ounces; to take six grains of compound ipecacuanha powder to-night, and to have a blister plaster applied to the abdomen.

23rd day.—He slept better, but was delirious towards morning, now he has a hurried manner and is incoherent; his face is anxious, and he has occasional muscular subsultus: skin hot and dry; pulse 128, very small and soft. He has passed two solid evacuations, of a very dark colour, as likewise his urine unconsciously. Tongue dry and trembling; blood is still oozing from his nose and mouth, but no distinct source of hæmorrhage beyond the cracks in his lips is detectible on examination. The heart's sounds are very feeble, almost inaudible.

Ordered to continue the other treatment; to take five minims of tincture of opium, with ten minims of dilute hydrochloric acid, every four hours.

His pulse became almost imperceptible, and he sank gradually at seven on the following morning, having passed unconsciously two evacuations containing much blood a few hours before death.

Body examined twenty-nine hours after death.—Neck relaxed; the rest of the body still rigid; the blood generally very imperfectly coagulated. The brain was externally healthy. The left pleura was free; the right extensively adherent by old, tough false membrane. Both lungs, especially the left, presented dark purple spots on their pale front surface: behind, they were con-

gested. Within, they were generally pale and œdematous, with darker spots corresponding to those already noticed on the surface, and evidently the result of extreme local congestion or extravasation. The right bronchi were healthy, the left loaded with blood and mucus, so that the lung could not collapse, but retained its form and size, when withdrawn from the cavity of the chest, as if it were emphysematous. The bronchial glands were large and dark, with some earthy deposit, but there was no tubercle anywhere in the lungs. The heart was in all respects healthy.

The stomach was full of a dark olive-green, almost black, fluid; the mucous membrane was of a pale pink colour, arising from a pretty general capillary injection. The small intestines were healthy, except the lower part of the ileum: here, corresponding to dull red patches on the surface of the peritoneum, Peyer's glands were found corrugated and highly injected, with an adherent mucous crust. In some, a few small ulcers or abrasions were to be noticed; but the most striking characteristic was the swelling of the mucous membrane, which, just above the ileo-cæcal valve, was thrown into dusky pendulous folds. A few sloughy ulcers were visible hereabouts, and the solitary were generally in the same condition as, though in a less degree than, the aggregated glands. The large intestine, as far as the beginning of the descending colon, was spotted here and there with small round ulcers, some of which, near the cæcum, had a sloughy surface, but further on they appeared as little more than abrasions of the mucous membrane. The mucous follicles of the rectum were marked with black spots. The mesenteric glands were large, dark, and mottled; in one of them was a collection of pus. The spleen was large, dark, and soft. There was considerable ecchymosis beneath the mucous membrane of the pelvis of the right kidney, and the urinary bladder, on close examination, appeared dusted over, as it were, with minute bloody points; presenting, besides, near the fundus,

several ecchymosed patches of about two lines in diameter. The liver was healthy.

The treatment of fever consists so entirely in attempts to resist the tendency to death during its continuance, not to cure it, that its consideration, in relation to the morbid anatomy of fatal cases, becomes more important, if possible, in this disease than in any other, so that the knowledge of the way in which one patient died may enable us to arrest, as far as may be, such a tendency in any other cases. And this investigation is always as interesting as important, for on it turn especially the lives of those who are at the time suffering from the same form of the disease. This boy died of diarrhœa, accompanied by hæmorrhage from the various mucous surfaces, coming on at a late period in a fever whose chief characteristic had been great muscular debility. The treatment was directed to support him, to check the diarrhœa, and to alter the condition of his blood indirectly by the action of the mineral acids. The morbid anatomy fully explained the diarrhœa, by ulceration, and the occurrence of hæmorrhage, by the state of the mucous membranes. What does it say with regard to the treatment adopted?

The chief indications of treatment were to check the hæmorrhage and the diarrhœa, and to support life. What, then, was the source of the hæmorrhage? There were no petechiæ, the blood visibly issued from some cracks in his lips, and his nose was bleeding; to which, indeed, he had been for some time liable. Was the hæmorrhage into the alimentary canal passive, such as might arise from that condition of blood which manifests itself by petechiæ, or was it active, from ulcers in the intestines, the apparent amount being increased by the blood passing down the pharynx from the nose? The coincidence of diarrhœa favoured the latter supposition, and the diarrhœa moreover urgently required special treatment; so this indication was acted on first.

By the next day the diarrhœa had been checked in some

degree, though the evacuations were dark, as if mixed with blood. But this might be only the sweepings of the intestines: the dark colour of the urine threw little light on the matter; for hæmorrhage might take place in any healthy person after over-distension of the bladder. But the diarrhœa being now under control, and the fact that blood was oozing continually, (as now ascertained by the observation of the last twenty-four hours) being against the probability of the hæmorrhage from the mouth depending mainly on the occasional opening of the fissures in the lips while he was taking nourishment, there was another indication available. In this view a small quantity of dilute hydrocholoric acid was ventured on,—with how little success the sequel tells: yet, as far as can be judged from the examination of the body, this was the correct indication, the condition of the stomach and vascular folds of the lower end of the ileum well representing the possible source of abundant hæmorrhage. And there is little reason to doubt, that, had life been prolonged, so that this indication might have been fully acted on—as each day's experience showed its safety and correctness—by increased doses of mineral acids and astringents the case would have had a different termination.

It would be exceeding the proper limits of these remarks to dwell on the danger generally of at once suppressing an hæmorrhage, without having regard to its cause; perhaps it is even more than the comparative frequency of the occurrence has latterly merited, to have dwelt thus far on hæmorrhage from the bowels in fever, independent, in any considerable degree, of ulceration. But its importance is a sufficient reason to draw attention at least to a form of hæmorrhage, which, while the real nature of the case, in the absence of petechiæ, might be readily mistaken, and the hæmorrhage be attributed to ulceration of the bowels, is much more in need of medical assistance; and though it be a far more fatal form of disease, is in its essential nature more amenable to treatment than the other.

The treatment of fever now comes before us in a different

point of view to any in which we have hitherto regarded it; and one more connected with the fever itself than with any particular local complications. The result in the last case was just such as might have been apprehended in Case XXVIII., where typhus and purpura existed in the same subject: but this last patient had not purpura, and the symptoms were in all respects slight at the commencement of the disease. Judging from the cases already detailed, after a severe attack of fever, knowing what organic lesions may exist, we should hesitate and feel our way before adopting any plan of treatment which might call up symptoms at present latent. Such is the fair inference from Cases XXIII. and XXIV. But we must go further: a patient presenting inflammation of some organ, as of the lungs, with obscurely marked constitutional symptoms, must be treated very cautiously; for behind this inflammation fever may be going on, which it might cost the patient his life to unmask by ordinary treatment directed to subdue the inflammation: such are Cases XIII. and XIV. And further yet:—we must not always expect definite disease of some important organ to tell us that the patient is really very ill, and to put us on our guard. The last case may serve as a proof to the contrary. It is only a part of the treatment of fever, which regards it as characterized by its own unmistakeable signs: we must be prepared to recognise it, and its organic results, though the latter can only be surmised to exist, and itself appear to have passed away and left only simple weakness: to fear it again, where simple weakness seems to mask the symptoms of ordinary disease, and to look beyond this weakness itself, if it be the only obvious symptom, so as to catch the earliest indications of latent fever; for fever and weakness become truly commensurate terms only when all treatment has to give way to the simple indication of obviating the present tendency to death.

Now the import of these cases, taken all together, is that when fever is prevalent, too great care cannot be exercised in ascertaining the actual meaning of every symptom; and this, as well

on all other accounts, as for two reasons in connection with the present subject: for, on the one hand, to see fever that is not to be treated actively in every case of disease which may come under observation, would sorely tie our hands, and lead to very unfavourable results in practice; while on the other, as it would be presuming too far to suppose that even with the highest degree of skill and attention a case of fever would never be overlooked, no step should be taken without the fullest considerations of what may be feared, as well as what is to be expected from it. The reparatory powers of nature, aided by rest and close attention, are rather to be trusted than any bold strokes, as they are called, calculated to stimulate or deplete, struck in uncertainty. To do nothing is indeed very easy, but it is often really the boldest practice, and its true indications the hardest to seize.

But this plan of treatment, this watching system, was carried out rather in the two ensuing cases than in the previous one, for when he came under observation his symptoms were obvious enough; the difficulty was to interpret them correctly and choose the right indications. The lesions found after death were of such a curable nature, and in themselves so slight, that the conviction is almost irresistible that a very little attention at an early period would have precluded the occurrence of death in a way so singular and so exactly referable to a diseased condition of the blood.* The history of this earlier period is supplied by the following cases, particularly the first of them, which only the

* Dr. West, in the paper already alluded to, has a remark of much interest, as relating to this subject. (Ed. Med. Surg. Journal, vol. l. p. 135.) "Once I observed considerable hæmorrhage take place from the gums and lips, and the whole tongue became encrusted with blood; a second time I saw the tip of the tongue become sore, cracked, and bleeding; and, on a third occasion, the edges of the tongue ulcerated; but unusually protracted convalescence was the only circumstance in which these differed from other cases."

appearance of the rash distinctly marks as fever. For all its obscurity, it is well worth studying, in connection with the case last detailed.

CASE XXXI.—*Slight fever, with papular rash, not marked by any prominent symptoms; slow convalescence.*

Elizabeth Bensley, aged 14, admitted October 20th, 1846. Faith back ward. A girl, tall for her age, of a dark complexion; face flushed; skin hot and moist, with a scanty papular rash on the abdomen; tongue moist, with a thick yellow fur, tip and edges red, with elevated papillæ; bowels relaxed from medicine, abdomen full, hard, tolerant of pressure; pulse 96, full; respirations 36; has pain in the head and limbs, vomiting, thirst and watchfulness, of nine days' duration.

History.—A servant: nine days ago was seized with giddiness, headache, and vomiting. She went out and got wet that day, and the next had a rigor followed by heat; she was drowsy during the day, but at night became delirious, and she has gradually assumed her present condition, the history of the case presenting no prominent symptoms throughout.

Ordered a saline draught, with camphor mixture, and half a drachm of antimonial wine, every four hours.

11th day.—Sleep disturbed, delirious at night; face flushed, but soon turning pale when she sits up; tongue with a thick fur, the tip red with prominent papillæ; three relaxed, ochry motions, abdomen tender in the right hypochondrium; pulse 90, small, soft and thrilling. She complains of headache and general pains.

Ordered to continue the draught; to have eight leeches applied to the epigastrium.

12th day.—She slept well; there was free bleeding from the leech bites, but she still has pain in the right hypochondrium; her face is less flushed, but her eyes remain injected; the

tongue moist, with a thick fur; pulse 102, small and soft; bowels open.

Ordered to continue the draught; to have eight more leeches applied to the seat of pain; to take five grains of mercury and chalk at once, and half an ounce of castor oil to-morrow morning.

13th day.—She slept well, and now looks and speaks of herself as much better than yesterday. She vomited two or three times this morning; tongue still furred, but cleaner, pale; pulse 108, small, soft; skin warm and soft; bowels once open.

Ordered a saline draught, without antimony, every four hours; five grains of mercury and chalk to-night.

14th day.—Slept well; face flushed at times; tongue still much furred; a few white patches are to be seen on the gums; bowels not open; no pain on pressure of the abdomen: pulse 108, small and soft.

Ordered to continue; to take half an ounce of castor oil at once.

Till the 18th day, the notes chiefly speak of the repeated use of mild purgatives, and their effects; they notice the continuance of the rash, and on the 17th day, for the first time, the occasional intermission of the pulse. On the 18th, her face, which had become pale and listless, was now again flushed; she lay dull and drowsy, but had been noisy during the night; pulse 108, small, soft, jerking; tongue cleaner, and moist; bowels not open since the previous day, abdomen tolerant; she had some cough, with an adhesive mucous expectoration; no morbid sound was audible on auscultation, only the air did not seem to enter the base of the lungs freely.

Ordered a saline draught, with twenty minims of antimonial wine, every six hours; to continue two grains and a half of mercury and chalk thrice daily, as ordered on the 15th day; and half an ounce of castor oil to-morrow morning.

19th day.—She is very dull and drowsy; tongue moist, still furred; pulse 96, occasionally intermitting; one light, ochry

motion from the bowels, abdomen tolerant; she vomited twice this morning.

Ordered to continue the pill; to leave off the draught.

20th day.—Drowsy; tongue with a moist white fur; pulse 96, small, soft; skin warm and moist; two light-yellow evacuations from the bowels.

Ordered to continue.

The remaining notes merely relate how the tongue gradually became clean, and all the bodily functions resumed their natural condition. But so weakened had she been, that it was not until three weeks after the date of the last note that she was able to leave her bed, though nothing had occurred to interrupt the progress of her recovery during this period.

In Case XXX., an instance was given of a lad struggling against the early symptoms of fever, but destroyed by a rather unusual result of that fever at a later period. This girl might have been pronounced out of danger at a period when the boy's more severe symptoms had not yet commenced. It cannot of course be inferred, that if she had, in like manner, neglected the earlier symptoms, the disease would have proved fatal, nor is it to favour such an inference that the case is here detailed. There were very few prominent symptoms in her: she had a flushed face, and just symptoms of vascular action enough to encourage a trial of antimony in a young, and seemingly strong subject; but she appeared better when this medicine was discontinued, and certainly, when it was repeated on the occurrence of a slight exacerbation on the eighteenth day, it irritated the bowels. Her tongue became gradually cleaner as the disease disappeared, though it cannot be said that its condition bore any exact relation to the state of the alimentary canal, as tested by the alvine secretions or the pain in the abdomen on pressure, save that the redness of the apex disappeared after the application of leeches on the eleventh day. But yet the protracted convalescence, and her extreme debility, would argue, had she even presented none of these symptoms, that she had been very

ill. Does the last case give any clue as to what had been exactly the matter with her?

CASE XXXII.—*Lingering convalescence from fever.*

Thomas Taylor, aged 12, admitted Oct. 14, 1846. John front ward. A thin, pale-looking child: was taken ill, three weeks before admission, with cough, and pains in the limbs, but not so severely as to compel him to lay up. After a fortnight he took to his bed, with giddiness and diarrhœa, and during the two last nights he has been delirious. Now his tongue is clean, dry, and glazed; his bowels relaxed, with pain on pressure in the region of the descending colon; pulse 100, soft. His chest being examined, on suspicion of latent pulmonary disease, some scattered crepitation was discovered behind, with slightly impaired resonance on percussion.

Calling this the twenty-second day of the fever, it seems enough to select from the notes merely the dates of the subsidence of the above symptoms. 1. The last note of the occurrence of delirium occurs on the thirty-seventh day, and by the forty-first his heavy listless condition was changed for a more animated cheerful state. 2. The cough had disappeared, and the auscultation gave no morbid signs on the fifty-first. By the forty-fifth, his pulse had sunk,—after having risen to 136, on the thirty-fourth day,—to 82, full, and soft. The tongue was still glazy on the forty-first day, but no abdominal symptoms called for any notice after the twenty-seventh day.

And the treatment during this time;—a blister plaster was applied to the chest shortly after his admission, but though this was all that could be called active treatment that was employed, the child did not lie in bed unheeded, till he should get well of himself, for the state of his symptoms was most carefully examined every day; but no indications for treatment could be detected at any such examinations. All his symptoms remained within certain limits, never rising so far as to become subjects of

special treatment, yet always such, till they finally disappeared, as to cause anxiety lest they should be very prominent the next day. Would it have been advisable to try to hasten his convalescence by active tonics or stimulants? The state of his lungs gave great reason to fear the ill success of such a method, while, on the other hand, there was no strength to undergo any active depletion for the pulmonary lesion on which his cough depended.

Looking now to what the three last cases present in common:—the first attack of fever was marked by no particular symptoms in any of them, two of the patients being able in some sort to continue their ordinary occupations; the other, while under observation, was very little influenced in all but one respect, however important that might be, by the treatment adopted. Perhaps this neglect of himself during the early period, and the nature of his occupation,—such a life as is that of a baker—may have had something to do with the mode of termination of the first case. The case shows at least what may exist in connection with the symptoms of mere debility. Perhaps again—for it is only a probability, though of the greatest interest—on such a lesion hung the cause of the tardy convalescence of the second and third patients. In the second all morbid action seemed to have been subdued, she had merely a very slow convalescence: in the third, convalescence can hardly be said to have been proceeding on his admission; he seemed then still suffering under protracted fever. But can we look further, can we join these cases by a positive instead of a negative link, by something that they had in common rather than by what they agreed in not having, by the latent character, that is, of all the early symptoms: where the symptoms of organic disease were so slight, or none, are we right in seeking to explain the complete failure of the constitutional powers, not so much by sympathy with the local changes as by an altered condition of the blood?

CHAPTER VIII.

GENERAL SUMMARY OF CASES.—AFFECTIONS OF THE SKIN,—NERVOUS SYSTEM,—VASCULAR SYSTEM,—LUNGS,—DIGESTIVE ORGANS.—REMARKS ON GENERAL TREATMENT.

It has appeared better, to collect, in the form of a general summary, such remarks as do not immediately arise from the cases of fever detailed in the preceding pages, rather than to overload each case with observations which might have but a remote connection with it. Although the following observations claim to be fair inferences from cases which have been treated in the hospital during one year (1846,) they must be considered as relating less strictly to that particular epidemic to which limits of time have been thus arbitrarily prescribed, than to severe fever in general: for, as concerns the cases themselves, by the nature of the author's office, an unduly large proportion of fatal cases fall under his notice. To admit into a general analytical table any case which has not actually been watched, merely on the strength of its being entered in the Hospital admission-books as fever, would admit a source of fallacy to an extent which only those who have examined each case are aware of: it seems absolutely necessary, when we come to deal with figures, where a random guess that a case was one of fever stands for as much as the most careful investigation of all the symptoms, that the individual elements of any series of cases of such a disease as fever—whose essence, indeed, often consists in our inability to find out any local cause for the constitutional symptoms—should all be examined by the

same person. And in the impossibility of examining the whole number, though greater accuracy might have been perhaps obtained by exactly recording the whole experience of one physician only, circumstances rendered it more convenient to present them just as they were collected from the practice of all the physicians, always the cases of greatest severity, or the most instructive in points of treatment, subject to fallacies from such causes, and with all the imperfections of the author's diagnosis. Their claim to be considered as representing severe fever in general, it is hardly necessary to remark, does not rest on this inapplicability to the present case, but among other things, on their close analogy (as was kindly pointed out to the author during the progress of the epidemic) to the cases detailed by Andral as giving his experience of the general characters of continued fever; an analogy in the symptoms, in the nature and situation of the various organic changes when existing, and in the occasional absence of all structural lesions.

The history of each particular symptom may be found in the pages of Andral, Louis, or Chomel, worked out with more exactness, and at greater length, than the present occasion would allow of, or give any interest to. The following remarks apply almost exclusively to various points of treatment or diagnosis which excited interest in particular cases, the further details of which were not of sufficient interest to be presented here, or where the point itself was not of a nature to be elucidated by a single observation. Such remarks, of whatever nature, whether relating to the treatment or to the morbid anatomy of the disease, have been classed together, according to the part of the body to which they refer. To enlarge the numbers for analysis on particular points, cases from the practice of other years have been occasionally referred to, but any fallacy has always been avoided by the use of a new number on such occasions, and the present notice is to assure the reader that this occasional change of number does not arise from inadvertency.

Skin: *Rash.*—The eruption on the skin in fever has always attracted much attention, and deservedly; for although of little moment in itself, yet being in many cases of so striking a character and so easily detected, its presence often throws light on the nature of a particular case, and it is useful besides in connecting the epidemics of one period with those of others, which have now become matters of history. With regard to its diagnostic value, nothing further need be said than that until the same eruption, trivial as it is in many cases, amounting only to a few papules or spots, can be shown to occur under the same circumstances in any other class of cases of acute disease, the belief of the specific connection of these spots with continued fever must be maintained.

But, while claiming this consideration for the rash of fever when present, it must not be supposed that fever cannot exist without this eruption; for in thirty-five only of fifty-two cases in which the eruption was looked for, was it clearly distinguished, and in these it exhibited characters so different as only to be included under a very wide definition, rather than adopt which it seems advisable to speak of them as so many forms of rash, taking their name from their most prominent features. In seven cases, accordingly, the rash was composed of distinct red spots, scarcely, if at all, elevated, and fading on pressure. Of these cases three died. The eruption appeared about the fifth day; but the observations on this point are much limited by the rash not having attracted the patient's attention, in several cases, until it was pointed out to him on admission, all such cases being necessarily excluded from the determination of the above question.

In eleven the rash was papular—that is to say, made up of small, raised, red papules, fading on pressure, fewer in number than the spots composing the spotted rash, appearing about the seventh day, or sometimes not till the third week, and numbering only two fatal cases.

In thirteen cases the rash had no such definite form, but

existed as a general mottling of the skin of the chest and abdomen, commencing about the eighth day; three of these cases terminating fatally. In four others there was a generally diffused dusky redness: there are no facts to tell with accuracy at what time it commenced, but it was only seen in very severe cases, three of them having been fatal.

Petechiæ, as already noticed, occurred in only three cases; and excluding one case, where, probably, they were nothing more than a fresh crop of purpura spots, they seem to have appeared exactly at the end of the second week in the other two cases; the one who recovered having been previously marked by spotted rash, and the other, who died, by diffused, dusky redness.

It is sometimes said that the common fever rash changes into petechiæ. This is not strictly true, for the wrists and insteps are the most common seats of petechiæ, while the ordinary rash is most abundant on the trunk: and when the two coexist, intermixed so as readily to be observed together, they are seen to appear and fade quite irrespective of each other's changes. The actual conversion of an exanthematous into a petechial spot may sometimes occur, but however possible, or indeed probable, the change is very unusual.

Desquamation.—Keeping out of consideration those cases in which it merely resulted from the drying up of miliary vesicles — though neither was miliary eruption always followed by desquamation—this is noticed as having occurred in four cases. In two of these it appeared on the tenth and thirteenth days, following a papular and mottled form of eruption respectively. In the two others it followed, on the thirteenth and nineteenth days respectively, the appearance of a diffused rash, which in the first there was great reason to consider as the rash of scarlatina, the desquamation in this case preceding the appearance of the ordinary mottled rash of continued fever by two days. (Case X.)

There is much room, on a question like this, for difference of

opinion; it is believed that the desquamation observed in cases of fever is no more than the separation of the cuticle, such as is to be seen after confinement to bed from any cause; and the four cases just alluded to are the only ones which presented this separation to such a degree as to merit any higher term than a scurfy state of the skin. But this question derives its sole interest from its relation to another—namely, whether the rash is an integral part of the fever to the same degree as is the rash of scarlatina or measles. This question has, as far as the analysis of the present cases goes, been apparently answered in the negative.

Miliary eruption.—Another affection of the skin which has claims to notice rather on account of its prognostic than its diagnostic value, occurring, as it generally does, at a period when all doubt as to the nature of the disease has long since been removed, is the miliary eruption, which has been noticed in twelve cases, appearing generally on the nineteenth day; five times as the only eruption, twice where the papular had previously existed, four times with the mottled, once with the diffused form, and once with petechiæ. Three of these cases terminated fatally, but in only one of them can this rash be said to have marked the period of death, for in the other two it was coincident with slight improvement in the symptoms, at periods which preceded dissolution by five days and nearly two months respectively. In the nine remaining cases this eruption certainly marked the period about which they were getting better, but not so clearly as in any single case (except perhaps Case XVII.) to be considered as critical. Against this must be set two cases (Case XI., and another not here detailed), where, though the patients ultimately got well, yet the appearance of the rash was by no means a sign that they were out of danger. In four cases its appearance was accompanied by profuse perspiration, in the others the skin was warm and moist, but no such remarkable perspirations coincided with the eruption, as to favour a notion commonly held concerning the immediate physical cause of sudamina, and expressed in their name.

The real value of a sign of which we do not understand the meaning,—for neither did this eruption accompany exclusively any particular form of complication, any more than it coincided during 1846 with any particular form of rash or character of fever,—can only be expressed by numbers, small as those may be: it betokened an improvement as 11 : 1; it promised a favourable issue to the case as 3 : 1.

But numbers give a very inadequate representation of the facts of a case, where words cannot exactly convey the idea. A tabular analysis would show that the skin had been warm and moist throughout the whole course of the disease, in the majority of the cases; but how different is the meaning conveyed by these words at the beginning of the disease from what it is at the termination; at one time a symptom of exhaustion, at another, of returning health. Dryness and moisture are terms which can easily be understood, but a far more important peculiarity of the skin must be actually observed before it can be fully appreciated—namely, the softness so characteristic of returning health in fever. But it would be ill wasting time on an analysis of mere symptoms, which have in themselves no influence on the life or death of the patient, but must be practically known, to be made available for good. The investigation of the symptoms referable to vital organs, and first, those of the nervous system, has higher claims to attention.

Nervous System: *Rigor.*—An analysis of the cases shows that they all presented some symptoms referable to the nervous system: the fact could hardly be otherwise: indeed, the same might be remarked of a set of cases of any disease of equal average severity with those which have been here detailed. But if the more severe cerebral symptoms be separated from the slighter affections, such as headache, it will appear, that in very few instances was the stress of the disease, as indicated by these so-called cerebral symptoms, on the nervous system.

The earliest symptoms of all in fever—namely, the rigor, total prostration of strength, and vomiting, by which the disease is

so often ushered in, probably belong to the nervous system; but having on a previous occasion alluded to their general meaning as initiatory symptoms, the only point remaining here for consideration is the occurrence of rigors in the further course of the disease. These have been observed four times in the present series of cases, their indications generally being the same as under ordinary circumstances. Thus they have appeared to be referable twice to the supervention of fresh disease, and twice to collapse; from which last condition, however, one of the patients was recovered by the timely exhibition of stimulants.

Headache.—Of fifty-two cases in which this particular symptom could be looked for, all had headache, commencing, in thirty of them, on the first day of the attack of fever. A symptom so generally manifested, and the assurance of its existence depending so entirely on the confused sensations and recollections of patients, cannot lead to any satisfactory inferences as to its meaning. Singularly enough, in Case V., where the cerebral disturbance was more marked than in any other case occurring in 1846, headache had preceded the fever, but with the fever came delirium masking all other symptoms, so that headache does not appear at all in the analysis of this case.

Delirium.—Out of the same number, thirty-nine were delirious, of whom fifteen died. In some of the fatal cases the delirium only came on just before death, as it might do in any disease, and subtracting these, the remainder, judging merely from the later date of commencement of delirium in them than in the successful cases, would lead to infer that early delirium is not a very unfavourable prognostic. But the mention of delirium in an analytical table, where too, unfortunately, the distinction between delirium as occurring by day or night has not been throughout observed with the care which its practical importance demands, is a very different thing from the analysis of each case by the bed-side, and the author would not, on the strength of the above facts, at all hesitate to hold the generally

received opinion, that early, wild delirium by day, especially with a propensity to suicide, is one of the worst signs in fever.

Affection of the special senses.—Increased acuteness of sight or hearing is regarded as unfavourable, indicating unusual excitement of the sensorium. Deafness is a symptom which causes considerable difficulty in the investigation of a case of fever, and by its nature can scarcely escape notice whenever it does occur. From the unfavourable import of the opposite condition, it has come itself to be considered of rather favourable import, when arising in a case already otherwise distinguished as a severe one. Of fourteen patients affected with deafness, four died.

Subsultus tendinum is generally one of the most discouraging symptoms: there is more cause for satisfaction in the recovery of a patient after this condition has fully manifested itself, than after any other occurrence, except coma, in fever. Yet it is not a symptom immediately preceding death, four or five days occasionally intervening before that event; an anxious period, during which, whatever may have brought the patient to that condition, a sound constitution and careful nursing are generally the only grounds of hope. Of eleven cases where this symptom was noticed, seven died; but in one (Case XXIV.) of these, it must be observed, this dangerous period was safely got over, and the patient died more than two months after, from peritonitis resulting from ulceration of the bowels.

Turning now to the results of dissection, it appears that, in all the cases but two, in which the body was examined after death, the brain was found healthy. In these two it is said to have been congested; but it is probable that this condition of the brain had nothing to do with the cerebral symptoms, which, indeed, were rather those of exhaustion in the two cases, for one of the patients (XXIX.) died suddenly from hæmorrhage into the bronchi; and the other (X.) shewed signs of great pulmonary obstruction during the latter days of her life.

Morbid anatomy would tell us, then, from this, that there was not much cause for apprehension in any of the cerebral symptoms; but even were this inference not vitiated by the well known fact, that death may result from causes acting on or through the brain, without leaving any traces of disease, (as in Case V.) the relief of pain, especially when that pain interferes with the functions of the body, is too important an indication to be overlooked. In the cases marked as having generally presented severe cerebral symptoms, the treatment was for the most part stimulant, as if those symptoms had arisen from exhaustion. But taking the cases the other way, inquiring into the treatment directed to subdue such symptoms as they casually arose, though they might not constitute the chief characteristic of the fever throughout, it appears to have been attended with very satisfactory results.

In seven cases leeches were applied to the head, or blood was taken from the temples by cupping, for the relief of the headache, other general antiphlogistic treatment being employed at the same time, in three cases with marked good effect, and in two of these cases the application was repeated; in another case of headache, the use of these means was attended with no good result. Again, to calm noisy delirium, and to quiet uneasy feelings, local depletion from the head, combined with the use of general stimulants, was found of much good in two cases; in another case, under the same circumstances, where drowsiness seemed to be passing into coma, depletion was employed without any particular effect.

Of five cases in which the effects of blisters to the head were noticed, it does not appear that positive good resulted in more than one case. The explanation lies partly in the fact, that blisters to the head are occasionally used during the latter stages of fever on the general indication of rousing the patient from almost hopeless coma; thus enlarging the number of cases where blisters have failed to fulfil the indications on which they were used by employing them in cases beyond their reach. In the one case

the headache, vomiting, and delirium, all ceased on the application of a blister to the scalp.

The mode of its application, wherein its great utility consists, excludes from consideration here the use of cold lotion to the head, a remedy from the employment of which perhaps a greater amount of comfort has been derived than from any other single means, and for whose use no analysis could furnish a safer guide than that which is habitually employed, the feelings of the patient from hour to hour.

There is nothing in the particular treatment of the other symptoms manifested through the nervous system, which calls for consideration in this place, apart from the treatment of fever as a whole, further than has been already explained in the narration of the individual cases.

Lungs.—It is scarcely necessary to do more here than refer to what has been remarked in a previous chapter (p. 61), on the qualifications with which any attempt to discriminate accurately between the different forms of pulmonary affection in fever must be received. With such qualifications the symptoms referable to the lungs have been set down generally under the heads of cough, pain in the chest, bronchitis, and pneumonia. It was rarely, however, that the two first mentioned became of sufficient importance to require special treatment, without their being reduced by auscultation under one of the two last more definite names.

Bronchitis, as far as this affection could be distinguished from pneumonia, was met with most frequently in the months of April and September, occurring commonly in the course of the second week, or earlier. Pneumonia was observed mostly in cases of extreme severity which were under treatment in October, this complication occurring generally after the third week.

On the whole, however, the pulmonary complications were not frequent, nor did they appear to be very important. There were about ten cases of bronchitis, and the same number of

pneumonia; two of the first and three of the latter died. But it cannot be said that the two first died of the bronchitis, and they never appeared to demand any special local treatment for this symptom. Death, however, seemed in great measure referable to the occurrence of pneumonia in two of the last three cases. The morbid changes have been already noticed.

As to the treatment;—in three cases of bronchitis, it was thought necessary to employ local treatment: in one of these, slight local depletion relieved the cough; in the two others, blisters relieved the cough and pain in the chest, and, combined with general stimulants, exercised a very favourable influence on the symptoms generally. In seven cases of pneumonia local treatment was employed. From six of these blood was taken away by cupping or by leeches: in four of them with most marked relief to the cough, dyspnœa, and pain in the chest; while one derived great relief from a somewhat complicated prescription, of which leeches to the chest formed a part. In the other case (XII.) apparently no benefit was derived from their use, and blisters equally failed to produce any favourable changes in her general symptoms, and, as judged by dissection, in the local disease.

Vascular System: *Pulse.*—There was nothing particularly noticeable in the pulse beyond its habitual smallness and want of resistance. Important as these characters were in respect to the indications of treatment in single cases, there does not seem to be anything of interest for a general analysis, beyond the facts, that in two apparently slight cases the frequency was never greater than 96, that the average greatest frequency was above 120, several times 144, and once 150 pulsations were counted in the minute, in cases which ultimately did well. A glance over the notes of a case, when completed, often shows how the progress of recovery might have been traced from day to day in the diminishing frequency of the pulse. But till the issue of the case is known, a sign of this kind takes its meaning from the other symptoms, and cannot

afford any safe grounds for a prognosis, as opposed to or independent of them: so long as the pulse is steady, beating with regular force and uniform frequency, and but little depressed by inspiration, even great frequency is of comparatively little importance.

Digestive Organs, &c.: *Throat.*—A few patients had pain in the throat, but only slight vascularity of the fauces, and in one case swelling of the submaxillary glands was discovered on examination of the parts, in explanation of a symptom which would have passed unnoticed but for the suggestion which constantly arose of its being referable to scarlatina, and the recollection that suppuration about the parotid was an occasional symptom in the severer cases of fever in 1838. In some cases of uncertain nature, occurring here at a time when fever was prevalent, large sloughy ulcers, with opaque submucous deposits, have been found in the pharynx about the root of the epiglottis.

Stomach: *Vomiting.*—The symptoms more immediately referable to, or manifested through, the stomach itself, were, nausea, vomiting, and pain in that part. Of these, vomiting, implying also probably nausea, was by far the most frequent; it occurred in nineteen cases. In some of these it was an initiatory symptom, and as such entirely removed from observation. Twelve cases only throw light on the circumstances under which it occurred in the further progress of the disease: —in three, it appeared to arise simply from the irritability of the stomach, which could not tolerate the food required for the support of the system, in the weakened state of the body at the end of a month or more of illness. In this sort of cases it is that the administration of food by enema is so useful, the stomach thus being placed perfectly at rest, and the patient saved the fatigue or annoyance of having food urged upon him against his will.

In two other cases, at a little earlier period, where the tongue exhibited only a slight fur, guided by the respective indications,

lime-water and hydrochloric acid were respectively prescribed with success. In four cases, this symptom, occurring towards the end of the first or in the course of the second week, was accompanied by diarrhœa, the tongue being more or less thickly furred. This circumstance was in a fifth case taken as an indication for the use of purgatives; but the plan did not succeed. In one of these cases, the vomiting ceased on the use of stimulants; in another, the application of leeches to the abdomen, guided by the indications of pain on pressure, was of great service; but in the three remaining cases the vomiting seemed referable to the condition of the intestines, judging from the diarrhœa, rather than to that of the stomach; the vomiting ceased, and the tongue became clean spontaneously, this change being followed in a few days, in one case, by a profuse discharge of blood from the bowels.

Vomiting is so distressing a symptom, and naturally attracts so much attention, that it is worth while to dwell rather on such cases as assure us that it is but a symptom, and teach us to look for its causes in other organs than the stomach. Thus, of the two remaining cases out of the twelve, which both presented a dry red tongue in the course of the second week, in one the vomiting was treated successfully by leeches to the right iliac fossa, where mischief was suspected; in the other, whose symptoms required stimulants, dissection showed a healthy condition of the alimentary canal: in the one, therefore, the stomach was apparently not the part of the alimentary canal implicated—in the other, the alimentary canal was not implicated at all.

2. *Pain in the stomach* was a prominent symptom in three cases, and in one of these, who also suffered from vomiting, the application of leeches, as already observed, was found of great service. In another patient (Case XVIII.) who died during the continuance of this symptom, the stomach was found generally injected; but lest too hasty a conclusion should be drawn from these facts in favour of depletive measures, it

must be added that the third patient, who also died, presented no such increased vascularity. No particular appearance of the tongue always accompanied this symptom.

It is useful in practice to note what symptoms may be most safely overlooked in fever; and such appear to be many of those referable to the stomach, which, unless they are prominently expressed in the general symptoms, had better be left alone, as they do not ordinarily arise from any inflammatory affection of that organ*. The fur on the tongue seems not to depend on the state of the stomach, but perhaps on the same cause as this and the diarrhœa, on both which it would appear that vomiting exerts a salutary influence; and, indeed, where nausea only is present, with a furred tongue, advantage is derived in fever, especially at the commencement, as in other diseases, by inducing vomiting by means of an emetic.

Intestines.—The symptoms from which the intestines were presumed to be affected were, pain in the abdomen, already existing, or produced by pressure, and diarrhœa, occurring respectively in forty-one and thirty-five cases out of fifty-two; twenty-six of these cases presenting both symptoms.

Excluding the most obvious sources of fallacy, it appears that out of these twenty-six cases where both symptoms occurred, the pain preceded the diarrhœa or accompanied it at its commencement in fifteen cases, and followed it in eleven. Of this whole number, the average date of admission was the 8.4th day; of the commencement of diarrhœa, the 3.5th; of that of pain in the abdomen, the 9.7th day. But inferences from these numbers must be further qualified, for as *pain in the abdomen*, on an average, was not noticed till after the admission of the patients,

* Louis, Fièvre Typh. i. p. 155, 2me éd., infers that no lesions of the mucous membrane of the stomach are at all peculiar to fever: that the organic changes which do occur, although very serious, and possibly the causes of death, are referable to a chemical rather than a vital cause, acting at a late period of the disease.

it is most likely that its existence at an earlier period had been overlooked by them; and further than this, the commencement of the diarrhœa, which appears to have, on the average, preceded the pain in the abdomen by more than a day, is, with great probability, to be referred to purgative medicine taken by the patients at the beginning their illness.

But, instead of pursuing further questions, the elimination of whose fallacies would only occupy so much time, it will be better to consider these symptoms in relation to the treatment employed to control them. And first of the

Pain in the abdomen, and employment of leeches.—In eight cases where distinct evidence of pain was produced, or pain already existing was increased, by pressure of the abdomen, leeches were employed. The pain was the first indication; it was confirmed, in some cases, by a red tip and edging to the tongue, and the degree to which depletion might be carried was measured by the pulse. Examined by the rule of comparing the symptoms which led to the prescription with those that followed the application of the leeches, the results do not appear very favourable; for, from only seven out of twenty-one applications was there any marked relief, and this partial success was not to be explained by any particular state of the tongue. But there are many expressions of comfort which do not appear in an analysis; and though the pain was not altogether removed in some cases, yet the local relief derived from the leeches was so great as to suggest their application in other places, which were now the least tolerant of pressure. But, indeed, it was not on such slender indications of improvement that the patients were again and again depleted for pain which had to be produced by pressure, while the pain in the head which they complained of was left to itself: the seemingly obscure indications rested most surely on what dissection told of the condition of the colon and ileum in other cases; and though leeches were not applied unless some tender point of the abdomen was discovered, yet a very slight degree of pain, with a red tongue and the least sharpness

of the pulse, were indications to apply leeches, though wine had to be given at the same time, so as to enable the patient to bear the depletion; while, on the other hand, a much greater degree of pain was often left alone, because no other symptoms were present to imply that the pain depended on any serious lesion.

Taking this more extended view of the subject, the results are very satisfactory; for of these eight cases only one died, and her death was caused, at a remote period, by the effects of ulceration of the bowels; in her, certainly, the right indications had been pursued.

For pain in the abdomen apparently unconnected with any organic lesion, there is one application so well suited, that it would never go untreated by any one who had seen the exceeding comfort derived from the application of a large linseed-meal poultice to the abdomen in some of the above cases, where the indications were not sufficiently well marked to justify the application of a blister plaster.

2. *Diarrhœa: use of purgatives.*—Diarrhœa, though a common and severe symptom, was not constant throughout, for in nineteen cases it was thought necessary, before or after admission, to employ purgatives. These cases may be classed by means of the different condition of their tongues, as the general symptom from which, in common practice, most is inferred with relation to the state of the alimentary canal.

In four cases, in which purgatives had been employed from the outset of the disease, and the tongue was thickly furred and moist, the diarrhœa which was set up was very profuse, and a cause of great alarm. In two other cases, where the tongue presented the same appearances, a cautious administration of purgatives produced the best result; the bowels were quietly relaxed for the time, though no direct result was discernible in the further progress of the fever.

In six cases, a single dose of purgative medicine, generally castor oil, was well borne; the tongue, which had not been

thickly furred in any of them, became cleaner, and the red tip and edging were changed, in one, for moist, flabby boundaries to the organ. But this class includes some who were approaching convalescence.

Seven cases, where there was little to mark in the state of the tongue, had merely constipated bowels, which it was thought advisable to relieve. In two of them, who had clean, dry tongues, this indication was sufficiently answered, for the small doses of purgative medicine which they took quietly unloaded the intestines: but their tongues remained dry, and they continued to sink till death, with hardly a symptom. In the other five, a troublesome diarrhœa was set up under the same circumstances, and there was reason to think that the purgatives would have been better omitted, though the death of the only one fatal case was attributable to other causes than over-purging.

It would be matter of congratulation if, from the above, we could draw any rule to determine the cases in which purgatives may safely be employed; but it does not seem possible so to do, the two symptoms on which one would rely, namely, the state of the tongue, and the preseuce or absence of pain in the abdomen, although often contra-indicating their use, never assuring us that they may safely be administered. The only inference which an analysis seems to justify is, that on the simple indication of emptying the bowels no ultimate harm has followed the use of a small dose of castor-oil; to give a larger dose, or a more active purgative, with a view of cleaning the tongue, as it is said, would be a very hazardous experiment, and one not very likely to succeed, for we have already seen how the tongue may remain thickly coated during the continuance of the most profuse diarrhœa.

Mercury.—Of the effect of one medicine very largely given to regulate the action of the bowels, with or without opium, namely, mercury with chalk, there are no sufficient grounds for speaking with certainty. The discussion of such a question

obviously requires that the same series of symptoms should have been allowed to run on, uncontrolled, in one series of cases, and have been treated with mercury and chalk in another. But we have no such double series sufficiently long and closely observed, to obviate the fallacies which rise up on every side in such an investigation, and can only state generally, that the effect of mild mercurial treatment was more marked in restoring the proper appearance of the alvine evacuations, where they had been dark and slimy, than where they had that light pulverulent appearance which is known as ochry. It was rarely that any actual astringents were required to check the diarrhœa, the addition of a small quantity of opium to the mercury and chalk being generally sufficient for this purpose, aided at times by an aromatic draught, with a few drops of laudanum, or a blister over the abdomen. This last remedy was employed in twelve cases with the following results :—

Blisters.—In three cases, where blister plasters were applied to the abdomen, on no very clear indications, no particular results followed, and in one similar case, the application was followed by a renewal of the profuse diarrhœa which the patient had previously laboured under;—these were the bad results. On the other hand, in one case, the pain in the abdomen, for the relief of which this remedy was made use of, was immediately removed, and in seven cases, diarrhœa, more or less profuse, was at once checked. The form of diarrhœa for which this application seemed most useful was where the bowels had been relaxed for two or more days, the evacuations being loose and watery, but otherwise of variable character, and passed unconsciously. The relief afforded under these circumstances was sometimes very striking, the more so, as the particulars of these cases clearly show the relief not to be owing simply to the stimulants which the patients might have been taking at the same time.

Character of the evacuations.—There was generally little to notice in the evacuations themselves, further than the

ochry character which prevailed in most of the cases during the height of the fever. But besides two cases which presented dark, almost black, alvine evacuations just before death, the colour of which was evidently attributable to blood, three patients had distinct discharges of red blood from the bowels. One of them, in whom the discharge had been very profuse, rapidly got well; the two others died. In the one where the hæmorrhage had only occurred once, and to no great amount, many ulcers were found in the intestines, and the same appearance of ulceration, in a more active form, was found in the other subject of intestinal hæmorrhage, which here was indeed very profuse. The severe hæmorrhage occurred at the end of the second week in both cases. This part of the subject has already been fully dwelt upon in the narrative of the cases alluded to.

Morbid anatomy.—Of thirteen cases in which the state of the mucous membrane of the bowels was examined after death, three presented a healthy condition of this part. The patients had died on the 10th, 13th, and 17th days of the fever. A fourth dying on the 13th day, had only slight thickening of Peyer's patches. The other nine cases all presented more or less extensive ulceration of the small intestines, extending, in all but one case, into the cæcum also.

Of these nine cases only two presented in its advancing stage the form of lesion to which the name of typhus ulceration is peculiarly appropriated—namely, a deposit beneath the mucous membrane covering the solitary or aggregate glands, by the separation of which, through a simple crack in the membrane, the typhus ulcer is produced. Such a state of things is exemplified in Case XVIII.

In other cases these glands were thickened, as if from interstitial deposit; but instead of cracks appearing in the mucous membrane, through which the deposit might be removed, there were small round ulcers on the surface (Case X.), which showed their independence of any deposit, by extending in some cases

beyond the limits of the patch on which they had originated, (Case XXIII.). The patches on which these ulcers were seated, as well as those which were not ulcerated, in the same subjects, were thickened, and corrugated on the surface. In one case (XXX.) this thickening was not confined to the Peyer's glands; but the mucous membrane of the lower part of the ileum was generally red and swelled, and hung down in folds.

An equal variety of lesions of the mucous membrane of the intestines has been described at considerable length by Andral*. There appears no reason for dwelling on them here, any further than merely to call attention to them, for the diarrhœa does not seem to have borne any close relation to the varieties, but rather to the extent, of the lesions. But a few remarks on the connection of this lesion with the symptoms observed during life will not be uninteresting.

Of the thirteen cases where the state of the intestinal mucous membrane was examined, four presented no traces of ulceration. Of these, one had diarrhœa at an early period; and another had diarrhœa at a later period, with some pain in the abdomen; in both, however, these symptons were slight; the two others had no abdominal symptoms whatever. Of the nine cases where the bowels were found to be ulcerated, the whole number had diarrhœa, accompanied, in four of them, by hæmorrhage from the bowels. Of the seven in whom this point was investigated, five had also pain in the abdomen. So that, judging from these small numbers, the coincidence of pain in the abdomen and diarrhœa justly caused apprehensions of the existence of ulceration of the bowels. The condition of the tongue did not seem so safe a criterion, for the broad, dry, central streak, with red tip and edges, might be met with, independently of ulceration; but of all the varied appearances which this organ presented, hardly admitting, in so small a number of cases, of any exact tabular analysis, it may safely be said, that

* Clin. Médicale, 4me éd. tom. i. p. 490.

a red tip and edges of the tongue were more commonly seen during life when the intestines were found ulcerated than where they were found exempt from this lesion on dissection.

The subject of general treatment, apart from all consideration of local complications, which have been already discussed in the earlier chapters, seems to require a few remarks. Of the antiphlogistic treatment, in this point of view, there is not much to say, for venesection is all but excluded from the treatment of fever, and the few cases which were submitted to this operation throw no light on the particular indications demanding the operation, as they were bled before admission. Neither is there anything to say with regard to the use of other general antiphlogistic measures, as, for instance, of antimony; for the cases in which this medicine was given in quantity at all sufficient to produce any effect were very few, and the difference in the symptoms and progress of these few cases was so great that it seemed most likely that the inflammatory symptoms arose from some undetected local disease, and nothing but the fact of that disease remaining undiscovered, justifies us in considering them as cases of fever at all. Literally, the same objection might apply to most cases of what is called continued fever; practically, the difference between cases of this sort and the majority of the subjects of these remarks was very great.

In speaking of the continued use of wine, as distinguished from its use on a sudden emergency, on which point there is no need to offer any remark, there is the same difficulty as with regard to the employment of other remedies used habitually and extensively, that we have not a double series of cases, in one of which wine was employed, while the other was left, under parallel circumstances, to the restorative powers of Nature. The truth cannot be as distinctly, though perhaps not less surely, reached by the following analysis :—

Of the fifty-two cases, thirty-two had wine exhibited on the 12,1th day, taking the average. Of course this number includes

nearly all the severe cases,—all, indeed, but two of the fatal cases. Of the eighteen who recovered, it appears by analysis that they were admitted on the 7,7th, and had wine first given on the 12th day, while the fourteen who died were not admitted till the 9,2th day, and did not take wine before the 12,2th day. I am not aware of any fallacy which vitiates the inference from these facts, that early attention to the symptoms of fever, and early administration of stimulants, were great elements in the restoration of the severer cases of continued fever occurring at this period.

There are few points wherein present practice differs more from that of the last generation, than in this of the treatment of fever, whether a stimulant or an antiphlogistic plan should be pursued; but it cannot be too often repeated, that the difference is not in ourselves as physicians, but in the type of the fever. The directions for the exhibition of wine, according to which it has been given in the cases under analysis, are as clearly laid down in Bateman*, an author whom no one will accuse of leaning too much to a stimulant plan, as they could be by any witness of the fever now prevalent. The cases which were then the exception are now the rule, and, to quote his own words, "the conviction of opposing facts has compelled to a gradual but material change in the views respecting the use of the lancet, not only in fever, but in other diseases†," from those so ably inculcated by this author.

If the treatment of fever by bleeding consisted merely in the habitual abstraction of a few ounces of blood from each patient, it might possibly admit of discussion whether this plan were advisable or not in the majority of cases; but such is not the meaning of the term; it is not the question whether a few ounces shall be abstracted with a vague idea of doing the patient good, but whether such and such symptoms yield to

* On the Contagious Fever, p. 122.

† Op. cit. p. 98.

venesection, and assuming that a present advantage is derived from the treatment, whether the further progress of the cases is at all influenced for good or for bad by it. Bleeding, like all other treatment, is never to be prescribed except on its own indications, and the amount proper to be abstracted can be determined by the effect only. Judged by this rule, there is no place for venesection in fever as at present witnessed; for its indications rarely, if ever, exist, and when a little greater strength than usual has tempted to the employment of active measures to reduce any particular complication, the result has rarely, if ever, been satisfactory. For the complication has not been subdued as completely as if the same amount of depletion had been extended over a longer period, while the shock to the system has been much greater. Simply, this mode of treatment is not indicated, and does not answer; if in doubt, therefore, it is safest to abstain from general depletion.

In the same way, the writers on fever, previous to 1832, point out the impropriety of administering stimulants to the amount now habitually prescribed. But the use of wine, again, like that of venesection, is never prescribed except on proper indications, and there are certain signs by which to know as certainly when wine is doing harm as when it is doing good. So long as experience shews that fewer patients are lost by over than by under stimulating, it is right, in all doubtful cases, to lean to the safe side, and when in doubt whether to stimulate or not, it is safest to do so; not resting, however, without inquiry in this practice, but continually watching each case and each symptom, for experience has not laid down this law once for all: it may yet sometime teach us, as it taught Dr. Bateman, that when in doubt it is the safest plan to bleed.

In the treatment of ordinary disease, it is generally sufficient to know the symptoms and the habit of the body with which we have to deal. In fever, and other epidemic diseases, there is, however, something more wanted, namely, the knowledge of the *constitutio anni*, which Sydenham states he only obtained for

the advantage of his latter, at the cost of his earlier patients *. The study of morbid anatomy has in no slight degree enlarged the field from which this knowledge may be drawn, and accelerated its attainment by enabling us more correctly at once to refer effects to their causes; but everything must not be given up for the indications of this *constitutio anni,* for, whatever it may be, there are certain symptoms which have a constant meaning, and the necessity of attending to these symptoms could not be better enforced than in the quaint but accurate words of Huxham †, where, speaking of the small-pox, he says, "Here the pulse is rapid, full, tense; the breathing hot, short, and laborious; the heat very sharp, and the urine high coloured; the thirst great, the tongue dry and foul; the pain of the head, back, loins, limbs, exceedingly acute. Under such symptoms I would bleed in a pestilence, or else the utmost danger will arise from the inflammatory diathesis of the blood, abstracted from the contagion."

* Obs. Med. I. 2, sec. 3.

† On Fevers, transl., p. 126.

CHAPTER IX.

THE MILIARY FEVER OF 1847.—MODE OF OUTBREAK—COMPARISON WITH OTHER EPIDEMICS.—EXAMPLES OF THE SIMPLE AND OF THE MIXED FORM OF THE DISEASE.—RELATION TO THE FORM OF FEVER NOW PREVALENT.

THE form of fever now about to be described had these prominent features:—it was of short duration, but very liable to relapse, and contagious in an extremely slight degree, presenting, in the majority of cases, an eruption of miliary vesicles; the mortality also was very small, and the subjects of the disease were, for the most part, Irish newly arrived in London. Some traces of it had displayed themselves in the summer of 1845, which had not been entirely obliterated during the severe epidemic of spotted fever in 1846, but it first rose into particular notice in the spring of 1847. It did not at once supersede the spotted form, which, though it had declined since the end of the previous year, was still to be seen in the Hospital, only sudamina became from this time much more noticeable in such cases than they had been before. This was the first mark of the assimilation of the two forms; and then, as time went on, the two shaded in great measure into one, so that, by the end of the year, the distinction was lost which had been so curiously observed a few months before, when, while the residents still continued to suffer the better known form of the disease in all its severity, the newly arrived Irish had slight miliary fever.

The difference introduced at that time into the type of fever still continues; the disease did not pass away, as an epidemic of a totally different nature might have been expected to do, after it had displayed itself in the unmixed form, but connected

itself with the ordinary form of fever to produce a disease of a mixed type. There are still two forms of fever,—distinct in occasional instances, but shading into one another by many intermediate forms, which constitute, in fact, the majority of the cases,—characterized by the spotted and the miliary rash respectively, the latter being still, as before, very liable to relapse, and pains in the head constituting one of its prominent symptoms, the former being generally the more severe and fatal type, and remarkable for the unusually slight degree in which the intellect is affected in those suffering from it; both alike, but most especially the former, being contagious. The spotted cases bear depletion, when fully indicated, exceedingly well for fever patients, and derive marked advantage from it; the miliary cases derive equal benefit from the use of wine and stimulants; in both forms, glandular affections and subsequent formation of abscesses appear rather more common than ordinary. The mortality from both is greater than during the previous year, 1847, but notwithstanding the frequent occurrence of diarrhœa and abdominal or cerebral symptoms, the brain has been always, and the alimentary canal generally, found healthy, and the lungs are scarcely more affected than the season of the year would lead us to expect, in any class of diseases occurring under the same external circumstances. Such is the seemingly double type of fever which, after a short cessation during the presence of influenza, is now (February 1848) prevalent in the wards of St. Bartholomew's Hospital.

It cannot be unimportant to recall the circumstances under which a disease so unlike the form then prevalent, so sudden in its invasion, so exactly limited, in the first instance, to a particular class of patients, arose. During the winter months of 1846-47, the poor of London had suffered very severely; scurvy, a disease usually seen here only in single cases, and at intervals of two or three years, became very common in connection with the great scarcity of vegetable food at that time; sloughing sores were noticed in the surgical wards, and the

mortality from winter bronchitis in the medical wards was very great; as these passed away the type of fever changed, and the coming form was foreshadowed in the Irish miliary fever.

It is impossible now to present an exact history of this disease in all its details, for as it was soon discovered that the danger to life was exceedingly little,—if, indeed, there was any at all,—attention was withdrawn from this class of patients to the English, who were still, as were also some few of the Irish, suffering from severe spotted fever, and comparatively few notes of the slighter cases have been preserved. Inferences from the Hospital admission books, where the form of the fever is not mentioned, obviously would be quite inadequate to supply this deficiency. The chief features, however, were so distinctly marked, that from a comparatively limited number of complete records, the general identity of the disease with some recent epidemics may be clearly ascertained. Of the three chief epidemics of fever which have been recently described, namely, those of Scotland* in 1843, of Liverpool† in 1844, and of Nottingham‡ in 1846, the Scotch epidemic appears to bear the closest resemblance to that at present under examination, the two others having little more in common with it than the extreme tendency to relapse, which peculiarity of the year in the Nottingham epidemic would appear to have engrafted itself on a severe form of fever arising from local causes. The chief features of the Scotch epidemic were a sudden attack, short duration, and liability to relapse, the course of the disease being marked by a petechial rash, a rapid pulse, severe cerebral

* Monthly Journal, 1844, vol. iv. pp. 136—148, and pp. 253—258. Summary of Observations on the Epidemic Fever of Edinburgh, Glasgow, and Dundee. Dr. Wardell, Med. Gaz., 1846, on the Scotch Epidemic Fever of 1843-4.

† Dr. G. C. Watson, Prov. Med. and Sur. Journ. 1846, vol. x.

‡ Mr. Sibson, Med. Gaz. 1847, p. 59.

symptoms, frequent jaundice, and melæna, with occasional vomiting of altered blood, and a tendency to abortion in pregnant women.

The same short duration and liability to relapse were exceedingly characteristic of the fever on its first appearance in London; the sudden attack, however, more commonly occurred in the form produced by the first merging of the miliary in the spotted type at a little later period. Jaundice and hæmorrhage from the bowels were occasional, and headache was a frequent and very prominent symptom in the disease; abortion was not noticed, for the majority of the patients were males. Thus far the two epidemics were identical; but the difference in one respect, in the general absence, namely, of the miliary rash from the Scotch cases, is very remarkable. Dr. Wardell, in his carefully written description of the fever,* speaks of the miliary vesicles as having occurred "in a few instances, though these were of very rare occurrence;" and they could not well have been overlooked if they had existed, for the skin was habitually examined by Dr. Alison and others for the petechial rash which appears to have been common in his cases. While dwelling thus on what may seem a trivial sign, it is not intended to imply that the presence of the miliary rash was essential to this form of fever, for in some, as in Case XXXIII., it was absent, and many cases presented it in only so slight a degree that, but for a careful daily examination of the trunk and neck, it might have passed unnoticed, and yet these cases were in other respects well marked specimens of this form of disease; and, on the other hand, many whom there was no reason to consider as having fever, also presented it,—as phthisical and rheumatic patients, irrespective, it should be observed, of any tendency to profuse perspiration. The real value attached to the appearance of the eruption was this: observed in obscure cases it aroused a suspicion that the disease was fever, and in

* Med. Gaz. 1846, p. 230.

cases where it was already acknowledged to be such, that it would be of a particular type. Such suspicions were usually justified in the further progress of the disease: but useful as the rash thus was in a diagnostic point of view, and though its common occurrence in connection with certain phenomena would forbid one to consider it as merely accidental, its occasional absence or slight development are conclusive against it being an essential or important part of the disease. It marked one particular type as clearly as the spotted rash does, though it was not, like that spotted rash, confined to fever. It gave as much assistance in the diagnosis as the name of the disease written on the patient's head-board might have done; but, like that, it was calculated to direct, not to satisfy inquiry.

The three following cases represent the chief forms under which the disease occurred about the period of its first commencement. It is almost superfluous to remind the reader of the previous pages, with regard to the selection of these particular instances, that the type of fever is that of the majority only, not of every case; and though the type had somewhat changed by the time that Case XXXV. occurred, it is not necessarily a less characteristic example of the form which had prevailed more extensively a few weeks before.

Case XXXIII.—*Slight fever, in a girl lately arrived from Ireland; no rash.*

Ellen Carroll, aged 16, admitted April 17, 1847. Mary back ward. Small, slightly-made; face dusky and anxious; pulse 98, small and soft; tongue moist, red at tip and edges, covered with a thick white fur; bowels open regularly, abdomen soft, very tender in the epigastrium and right iliac fossa; Skin hot and dry, without rash. She has thirst, anorexia, headache, and debility of three days' duration.

History.—Lately arrived from Ireland, where she has not been suffering distress. For the last fortnight she has suffered

from headache and debility, and three days ago she had a succession of rigors, followed by heat and perspiration, with increased pain in the head and limbs. She has a constant feeling of nausea, but has not vomited. Her respirations are very hurried, 60, but nothing morbid is audible on auscultation.

Ordered a saline draught with camphor mixture every four hours.

5th day.—Slept badly, being disturbed by a storm; tongue cleaner; pulse 98, small and soft; respirations 36, no cough; bowels not open, abdomen still painful on pressure; skin hot and dry, without rash or vesicles; her face very dusky.

Ordered to take two drachms of sulphate of magnesia out of compound infusion of roses, immediately.

6th day.—She has much less headache; tongue cleaner; bowels open three times, abdomen still tender; pulse 96, small, soft; skin hot and dry, no rash; respirations 36, easy.

7th day.—Face dusky; skin hot and dry, without rash; tongue as before; bowels twice open; much pain on pressure in the epigastrium; pulse 96, small and soft.

8th day.—She slept well, and now lies easily on her left side; pulse about 96, small and soft; no rash, no pains in the abdomen.

The prominent points in this case are not many: it is their absence, indeed, which in great part characterizes the class to which it belongs. The treatment was purely expectant throughout: a single dose of purgative medicine on the fifth day, and the application of a few leeches to the temples on the ninth, constitute the whole of what might be deemed interference with the regular course of things. It will be observed, in further illustration of the fact that desquamation in fever is wholly unconnected with the eruption, that it occurred in this case where no rash of any kind had been detected on the most careful and repeated examination.

The next case might seem too trivial to mention here, but that it represents a numerous class, for which purpose it has

been transcribed with the following one from Dr. Burrows' Hospital case-book, being more characteristic of the disease than any which my own notes detail. It is very likely that the fever had been going on for some weeks, and that this was only one relapse during which the patient was observed. The history of the case, and the fact of his having no subsequent relapse during his stay in the Hospital, favour such a belief.

CASE XXXIV.—*Slight fever, with miliary eruption, in a man recently arrived from Ireland.*

Michael Donoghue, aged 22, admitted May 13, 1847. John front ward. A tall, strongly-built man; face anxious, lips dry; skin warm and moist; tongue moist, covered with a white fur; pulse 80, soft; bowels previously relaxed, confined during the two last days, abdomen tolerant. Has pain in the head and limbs and in the right side, with cough, loss of appetite, sleeplessness, and debility.

History.—He is a labourer; he came from Ireland six weeks back. Five weeks ago, after exposure to wet, he was seized with general pains and cough, which confined him to bed for five days. Soon came diarrhœa, and the pains in the limbs continued, so that he has not been able to work more than three days since the beginning of his illness.

Ordered to take five grains of mercury with chalk to-night, half an ounce of castor oil to-morrow morning, and a saline draught with camphor mixture every six hours.

May 14.—He had little sleep; face heavy; tongue uniformly furred; bowels open once, abdomen tolerant; pulse 66, soft; he has thirst and some cough, with frothy expectoration; the headache has ceased.

Ordered to repeat the same medicines.

May 15.—Good sleep; still dull and heavy; four solid healthy evacuations from the bowels; tongue moist and furred; pulse 60, soft; skin cool, with a few sudamina on the chest.

Ordered to continue the draught.

May 16.—No sleep from pain in the limbs; face natural; skin warm and moist; the trunk covered with minute vesicles filled with a coloured fluid; tongue cleaner; pulse 66, soft; bowels only open once since yesterday.

Ordered to continue the draught, and to repeat the pill to-night.

May 17.—Skin warm and moist; pulse 58, soft; tongue clean and moist; he complains only of weakness.

Ordered to take broth diet.

On May 20th he was able to sit up a little; by the 25th, with his returning strength, an abundant eruption of scabies had manifested itself, which is the only event to be noticed till his discharge on June 1st.

The following completes the series required to illustrate the symptoms of this epidemic in the class of persons in whom it first displayed itself. The first attack was exemplified in Case XXXIII.; in the last case the chief force of the disease seemed to have manifested itself in the relapse; in that yet to be narrated both the first attack and the relapse, with all their characteristic symptoms, were submitted to observation.

Case XXXV.—*Fever with miliary eruption, followed by relapse, in a man lately arrived from Ireland.*

John Hayes, aged 32, admitted June 7, 1847. John back ward. A tall, strong-looking man; tongue furred; skin hot and moist; bowels confined; abdomen soft and tolerant; pulse 132, small and soft; has headache and general pains of five days' duration.

History.—He is a school-master; he arrived in London, from Ireland, four weeks ago, since which time he has been suffering great privations. He felt ailing, but was not really ill till five days back, when, after a rigor, his present symptoms commenced, accompanied by thirst and a feeling of great debility.

Ordered to have his hair cut short, and cold lotion applied to his head; to take five grains of mercury with chalk to-night.

7th day.—He had but little sleep from headache; face pale and anxious; tongue red at the edges, furred in the centre, inclined to dry; pulse 116, feeble; three solid evacuations from the bowels, epigastrium slightly tender; skin hot and moist, without any rash.

8th day.—Broken sleep and occasional wandering during the night; face anxious, less complaint of headache; pulse 110, very small; tongue red at the tip and edges, dry and furred on the dorsum; three loose bilious evacuations.

Ordered a saline draught with camphor mixture and twenty minims of aromatic spirits of ammonia every four hours.

9th day.—He slept well, with but little wandering; now his face is less anxious, and he has no thirst or headache; bowels not open, abdomen tolerant; pulse 80, very small; tongue as before; skin freely perspiring, thickly set with sudamina.

Ordered to continue, to repeat the pill to-night, to take half an ounce of castor oil to-morrow, and to have some beef tea.

The notes of the 11th and 14th days speak of a steady improvement: his pulse fell to 60, the sudamina disappeared, and the healthy functions of the different organs were re-established. On the 23d day, from some cause not ascertained, he had suddenly great prostration of strength, with severe headache, and a fresh crop of sudamina appeared all over the body. He was ordered a dose of purgative medicine at once, and when seen the next day, (of which visit the note is unfortunately missing) to return to the use of the former draught, and to take gr. ijss. of mercury with chalk twice a day.

25th day.—Sleep disturbed by the frequent action of his bowels; face again less anxious; tongue moist, clean at the tip, with a yellow fur on the dorsum; pulse 94, small and soft; skin perspiring. He feels easier, and has less headache, but

complains of great weakness. His abdomen is quite tolerant of pressure.

Ordered to continue the draught.

26th day.—His bowels were relaxed ten times since yesterday, the last motion containing some florid blood; there is tenderness in the track of the descending colon; tongue as yesterday, only more inclined to dry; pulse 104, small and soft. He looks pale and sallow, but complains of no pain.

Ordered to apply eight leeches to the abdomen, to take an aromatic draught immediately, and again to-night.

27th day.—Bowels still profusely relaxed, the evacuations still containing blood, and the abdomen tender as before; tongue as yesterday; pulse 104, small and soft; skin warm and perspiring.

Ordered to repeat the application of leeches, and to take an aromatic draught with five minims of tincture of opium thrice a day.

28th day.—He feels much more comfortable; the leeches gave great relief, but there is still a little tenderness on pressure of the abdomen. His bowels have been moved seven times, there is some solid fæcal matter and no blood in the evacuations; tongue cleaner, moist; pulse 90, small and soft; skin warm and moist. His appetite is returning.

He was put on a system of nutritious diet with wine, beef tea and arrow root, continuing for some time longer the use of small quantities of laudanum in the aromatic draught. The successive reports speak generally of the improving character of the evacuations, and the restoration for the second time of a healthy condition of the bodily functions. On the 35th day he was allowed some solid food, and though the daily notes speak of the continual appearance of sudamina, his steady convalescence was interrupted by no other relapse during his stay in the Hospital, which continued till July 27th.

The symptoms, as already noticed, which ordinarily became prominent in this form of disease, were those referable to the head and to the bowels; in the last case the former class characterized the first attack of fever, the latter the relapse. The headache was not often such as to demand treatment; in one patient, however, in whom, on the first setting in of the disease, the pain——simple pain unaccompanied by any other symptoms—was so severe that she screamed out, as it darted through her head, the relief from the application of a blister plaster to the nape of the neck was most striking; as sudden as that which is sometimes derived from the use of iodide of potassium in its appropriate cases. By the side of this must be set a case, occurring at a later period, but here accompanied by good power of the pulse, where equally sudden and striking relief was obtained by cupping from the temples.

Pain in the abdomen, and diarrhœa, seem, from an analysis of the severe cases, to have been met with almost universally, and hæmorrhage from the bowels occurred in more than one patient, but the nature of the abdominal affection in this last, as in other cases, received no light from dissection, the intestines being found healthy in the few cases which proved fatal about this time. But these abdominal symptoms were occasionally severe, two patients in particular having had such exceeding tenderness on pressure of the abdomen, on admission, that they were supposed to be suffering from peritonitis, and free local depletion by leeches was consequently employed by two different observers on that supposition. As far as concerned the progress of the individual cases, this application of leeches seemed to have been hurtful, for, on the following day, one of the patients at least was in a state of considerable danger. He lay on his back, a picture of helpless prostration: the perspiration, how different from the perspiration of returning health! streaming from the whole surface, and a broad wavy line on the bed, following the outline of his body, marking the enormous extent to which the secretion had gone on. He was brought safely round by wine and am-

monia, but the pain was not in either patient permanently relieved by the means employed, and their convalescence was protracted. But the error was very instructive as far as regarded other cases; it showed that free depletion was quite out of the question in these cases, and that the indications of the pulse must be acted on as cautiously in this as in the other forms of fever. It taught also to recognise fever as lying hid behind other symptoms than those which had been looked on with suspicion in the preceding year.

It remains to connect the form of disease represented by the above details with the type of fever which prevailed after these slighter cases had passed away, and which, with some modifications, is the form now (Feb. 1848,) prevalent in St. Bartholomew's Hospital. The two following cases, selected out of the larger number now at command, seem the best adapted for that purpose:—

CASE XXXVI.—*Fever, with spotted rash and sudamina; nervous exhaustion; convalescence.*

Catherine Mercer, aged 24, admitted June 15, 1847. Hope front ward. Well made, fair complexion, face vacant; tongue with a rough fur, inclined to dry; bowels relaxed from purgative medicine, abdomen very tender; pulse 144, small, soft; skin hot and moist, with a spotted rash all over the trunk, and, though less vivid, on the face also. This has been her condition more or less for seven days.

History.—Married, now suckling for the fifth month; she was quite well till June 7, when on passing the door of a room where a man lay dead of fever, in the same house, she suddenly perceived a horrible stench, shivered, was seized with headache and vertigo, and has kept her bed since, sleepless and thirsty; she has a little cough.

Ordered a saline draught with three drachms of sulphate of magnesia, thrice.

10th day.—She lay moaning all night, but slept well; bowels much relaxed, abdomen very tender; skin warm and moist, the rash more vivid; tongue as before; pulse 132, small and soft; respirations 36, sighing, but regular. Her breasts are much less distended.

Ordered five grains of compound mercury and chalk pill every night, to have her head shaved, and to apply a blister plaster to the nape of the neck.

11th day.—She lay still, but had little sleep, and was delirious during the night; now she is deaf; her face is pale and rather anxious; bowels much relaxed, abdomen tense, very tender; tongue as before; pulse 132, very small and soft; skin hot and perspiring; the rash still vivid.

Ordered a saline draught, with twenty minims of antimonial wine, thrice.

12th day.—She is deaf, but sensible; bowels open once, abdomen still distended and tender; pulse 136, small and soft; tongue and skin as yesterday.

Ordered to have four ounces of wine daily.

13th day.—Better sleep; tongue cleaner, dry; pulse 132, small and soft; skin hot and dry, the rash as before; the abdomen is more distended, and very tender; bowels not open; she complains of pain in the head.

Ordered a senna draught with half a drachm of aromatic spirits of ammonia at once.

14th day.—Good sleep; bowels open twice; pulse 120, small and soft; tongue cleaning, moist; skin hot and perspiring, with sudamina on the chest.

15th day.—She has a very vacant expression, and is still rather deaf; tongue moist; skin warm, perspiring; pulse 128, with more power; bowels open once, abdomen tense, and tender.

Ordered two pounds of beef for tea daily.

16th day.—She sleeps much; tongue moist, with a streaky appearance; pulse 126, very small and soft; skin warm and

moist, the rash remaining; bowels open twice, the abdomen very tender.

A few words will suffice for the rest of the case: she lay in bed, constantly calling out "oh dear! oh dear!" in a listless way, or else she was dull and difficult to be roused, for the next few days; then, severe diarrhœa came on, the evacuations being of a dark olive green colour, though free from blood, and the abdomen continuing generally painful. These symptoms gradually subsided, by the 30th day all her bodily functions were re-established, and she was discharged in a fortnight after, not having suffered a relapse.

Apart from its general bearing on the present subject, the most remarkable circumstances in the above narrative relate to the mode of origin and aggression of the fever. As to the last, she was a nervous, excitable person, and little able to give any clear account of her symptoms, but, if her account is accurate, it would seem to have been one of those rare cases where the disease begins at once from the action of contagion without any intermediate period of incubation.* During the summer of 1847, as already noticed, though the wards were crowded with cases of fever, it happened very rarely that the spotted form of the disease spread by contagion to either patients or nurses; the miliary, as far as I am aware, never; the last case is an apparent but not wholly unexceptionable example of contagion, in the mixed form of the disease, out of the Hospital. But in the autumn, the spotted fever regained its contagious properties: during the last few months it has spread to an unusually great extent, and now both forms are almost equally given to spreading, and patients suffering from other diseases, or nurses, are attacked with miliary, or spotted, or mixed fever indifferently, as the case may be. It does not, however, appear that any one of these

* Three cases of this sort are mentioned by Dr. Tweedie, Cycl. Pract. Medicine, Vol. ii. p. 188.

forms is more commonly seen among those who, having had more particularly to do with patients suffering from that form of the disease, are attacked with fever; it would seem rather, that youth and strength are the chief causes determining the manifestation of the milder type.

It is in the circumstances under which the disease originated, that the next case also, apart from its particular object, has special claims to attention. Cases of this kind are so numerous as to constitute a class of themselves, where men in perfect health have walked up to London in search of work, and failing to get employment, with the fatigue and mental anxiety, and the immediate and entire change from country air and habits to the customs and polluted atmosphere of the metropolis, have sickened with fever. The mental uneasiness, as might be expected, generally appears very prominent in the progress of these cases, especially in females, and the disease takes a severe form. It is in these especially that the symptoms of prostration on admission must be acted on with great caution; for a warm bed and wholesome diet, and the returning consciousness that they are not alone in the world, but that there is some one still kind to them, does much for these poor creatures, and will often quite alter the face of things in a few hours. It is in these that it is so often necessary to do nothing but watch, for twenty-four hours, the effect of what to most are the common necessaries of life, but to them stimulants and luxuries. It might have been expected that, as a new comer, this patient would have presented the simple miliary fever: the fact of his having just come from another large town perhaps explains why he did not, but it should be observed, that, in the course of the summer, newly arrived English, as well as Irish, presented the simple form; though the disproportionately large number of the latter at one particular period tended to obscure the fact.

CASE XXXVII.—*Fever, with spotted rash and sudamina.*

James England, aged 23, admitted June 7, 1847. John back

ward. Slightly made; face dusky, anxious; tongue moist, with a thin white fur; pulse 120, small and soft; bowels open from medicine; skin covered with a distinct spotted rash; has pain in the limbs, thirst, and cough of ten days' duration.

History.—He is a last-maker, of temperate habits, who has walked up to town from Norwich, arriving in London ten days ago, quite knocked up; he had a rigor, and has since had several flushes of heat, feeling hot, but not perspiring; he has taken some purgative medicine, which has acted violently. On auscultation air is heard to enter the chest freely, with good resonance on percussion behind.

Ordered broth diet, a saline draught, with camphor mixture, thrice a-day.

12th day.—He had but little sleep, from pain in the left side; he felt hot, but did not sweat; skin warm and dry; pulse 108, weak; bowels slightly open. He complains of cough, with scanty expectoration, and of pain across the forehead.

Ordered to have his head shaved, to apply six leeches to the temples, and cold lotion to the forehead; to take five grains of mercury, with chalk, to-night.

13th day.—He found great, but not complete relief to his headache, from the application of the leeches. Skin warm and soft, with the same rash; pulse 108, small, soft but sharp; tongue moist, with a thin fur; bowels open four times, the motions partly solid, partly loose, ochry; the abdomen tender in the left hypochondrium, gurgling in the right iliac fossa. He feels dry and parched.

Ordered to continue the use of the cold lotion to his head; to have four ounces of wine daily.

14th day.—Good sleep; bowels not open; abdomen still tender on pressure; pulse 116, small and soft. He complains of pain in the head and chest, with more troublesome cough, and expectorates a frothy, glairy mucus, mixed with some blood from the nose. There is now some crepitation about the base of the right lung; respirations 30, easy.

Ordered to continue; to be cupped to ten ounces between the scapulæ; to take two grains and a half of mercury, with chalk, thrice a-day.

15th day.—He bore the cupping well. He slept well; has now less cough, and says that he is weak, but in no pain. Bowels open once; tongue still the same; pulse 116, small and soft; skin hot and dry. There is a little crepitation about the base of the right lung behind.

Ordered to continue.

16th day.—Good sleep; bowels open two or three times, the motions dark, bilious, and loose; the abdomen still rather tender; tongue as before, tremulous; redness and pain of the fauces, with a little swelling; pulse 108, very small and soft; skin warm and perspiring.

Ordered to take five grains of compound mercury and chalk pill twice a-day, and to apply a poultice to the abdomen.

17th day.—Good sleep. Two loose evacuations from the bowels; abdomen tolerant, gurgling on pressure; pulse 100, very small; cough as before, with the same expectoration; tongue clean, moist, and tremulous.

Ordered to continue.

The note of the 18th is almost a repetition of that of the previous day, only the pulse had fallen in frequency to 96. On the 19th day, it is noted that he had slept, but talked during the previous night; now he says that he feels better. Face paler, less anxious; tongue with a thin brown fur about the root; bowels open five times, the motions dark and loose; abdomen tender, and generally uncomfortable; pulse 90, with more power, but still very small: he has a little cough, and on auscultation there is some crepitation beneath the angles of the scapulæ, most abundant on the left side.

Ordered to take six ounces of wine, and one pound of beef, for tea, daily; to apply a blister plaster to the epigastrium, and to continue the pills twice a-day.

20th day.—Expression much improved; still he has cough,

with frothy, mucous expectoration; pulse 86, small and soft, but with more power; tongue as yesterday; bowels open thrice, the motions still dark and loose; the abdomen tender from the blister.

The only other note of interest is that of the 23rd day, when he is reported to be in all respects improved: tongue clean; face cheerful; numerous and large sudamina, containing an acid fluid, scattered over the abdomen. He proceeded steadily, and without relapse, to complete convalescence, and was discharged on July 13th.

Looking only at the fever as it presented itself in the regular inhabitants of London, there is nothing more remarkable in the change of the type in this particular instance, than has been seen in many others. The miliary type had been occasionally seen in this Hospital for two years previously, and now it first engrafted all its leading peculiarities on the declining type, and then appeared in the unmixed form for a short time, till the usual local influence again came into operation, reproducing, with certain modifications, the ordinary spotted fever. Nor, looking only at the fever as it presented itself in the Irish, who came in such numbers to London at the period of its outbreak, is there anything more to be observed here than an illustration of the well-known fact, that new comers are particularly liable to morbid influences, and suffer from them where the regular inhabitants escape. Taking, however, the two together, the facts of the case appear, at first sight, inconsistent with the opinions already expressed, (p. 3) that all the different forms of continued fever usually seen in London are but varieties of the same disease. It will be worth while to look a little further, in order to clear up this apparent inconsistency.

Now this question is not of a nature to be determined absolutely; all that can be settled is, whether the course of this epidemic was essentially dissimilar from what is ordinarily observed? It appears not. Before the full outbreak of any dis-

ease, the chief phenomena of the coming epidemic are witnessed in scattered cases, which, as nothing happens without a cause, must be considered to have been peculiarly susceptible subjects; and if, from any cause, large numbers of individuals, so predisposed, shall have been accumulated in any place, the number of the sporadic cases will be proportionably large; but they must not, for all that, be considered any the less as sporadic cases. Such is the view to be taken of the sudden outbreak of this form of disease among the newly arrived Irish. The different action of the atmospherical, if such it be, from the local influence, which was so strikingly shewn under these circumstances, points, indeed, to the existence of two agents; but the subjects of these two influences were for some time under such different conditions respectively, that no fair inference can be drawn from a comparison of them. And when, at last, the two forms were to be seen in the same class of patients, all observation is against the fact of the like disease having been reproduced by contagion from each form respectively. There appears, then, to be no ground for considering this disease to have been as essentially different, at any period, from ordinary continued fever, as scarlatina differs from measles, for instance; and whatever evidence might have been produced relative to the earlier period would be much shaken by the fact that, from its first outbreak, it has always tended to connect itself more and more closely with that from which it would be said so essentially to differ.

And such is the type of the epidemic now prevalent, which, judging from recent anomalous cases, would appear to be shortly about to change again. But it would be needlessly deviating from the plan of the earlier part of this work to dwell on these at length. The epidemic of 1847 seemed to demand a particular notice, both as being an unusual form of disease in itself, and that the reader, being put in full possession of the facts of the epidemic of 1846, might be able to trace in the narrative that gradual process of a change of the type of fever, which has been so often spoken of in the previous pages. The

present fever seems to hold a middle place between the old spotted and the more recent miliary forms of the disease; the fundamental type is apparently the miliary, but all the more striking incidents displayed in individual cases,—sudden collapse, extreme contagiousness, a tendency to glandular affections, gangrene of the extremities, and in more than one case a profuse discharge of dark blood from the bowels,—point to a recurrence of the severe type of former years. Nor is the author without misgivings, that in so dwelling on the present type, important though these single events are, he would be demanding an attention, and expecting an interest, from the general reader, which those only who devote themselves to a particular study can feel. Instead, therefore, of detailing cases in illustration of these particulars, it seems best to narrate at length a case which was selected in the first instance as exemplifying the prevalent form of fever in all its severity, and which, though now dissection has clearly explained the case otherwise, seems not the less appropriate conclusion of this series on more than one account:—as parallel in many respects to cotemporary cases:—as illustrative of the difficulty of diagnosis already so often alluded to rather than instanced:—and as in itself a case of extreme, though painful, interest.

CASE XXXVIII.—*Gangrene of the fingers during an obscure affection, explained by the discovery of purulent infiltrations of the different organs.*

Mary Bibby, aged 15, admitted Feb. 14, 1848. Thin, slightly made; face pale, dusky, and anxious; tongue red at tip and edges, with a brown fur, rather inclined to dry; bowels relaxed, three evacuations, of a healthy colour, but exceedingly offensive, having been passed to-day; abdomen exceedingly tender on pressure; skin hot, rather dry, with an abundant vesicular rash all over the abdomen; pulse 120, small and soft; respirations 42. She has general pains of nine days' duration, and gangrene of the last joint of the right middle

finger for the last two days. She lies gathered up in the bed, unwilling to be moved, and especially to have her right arm straightened; coherent, but slow in her answers.

History.—Her mother says that she has always been a healthy child, having had nothing the matter with her since the scarlatina at twelve months old. For the last six years at least she has been free from chilblains. She was lively and active, a servant in a poor family in Shoreditch, living with the children and treated as one of them, well fed and cared for. A fortnight ago she complained of pain in the left side of her loins, so severe that it was thought she had received a blow there, but she said she had not. She took to her bed after two days; nine days ago she had a rigor, and the rigors have been repeated frequently since, while the pain in the loins has got continually worse, extending also to the right side. After six days more, medical assistance was obtained; the disease was declared to be pleurisy, and a blister plaster was applied to the left side of the chest without any effect. She now became delirious at night, thirsty, with no appetite, always in pain, and so sensitive that a heavy step on the floor of her room caused her severe pain in the legs. However, so late as two days ago she was able to walk across the room with assistance. On this day pains in her right arm became a subject of complaint; and on the same afternoon the end of the middle finger of that hand was noticed to be black, as it is now, with a dusky redness extending over the next phalanx. There are two or three dusky red spots on the outer edge of the left foot, a small vesication on the end of the second left toe, a small bleb or two filled with a bloody fluid on the right leg, and a few red patches elsewhere. No sore has been observed on her back.

On auscultation, the heart's sounds appeared feeble but healthy. She was not disturbed for any examination of her lungs.

Ordered, compound mercury and chalk pill, five grains, every six

hours; a saline draught with twenty minims of aromatic spirits of ammonia, every four hours; a pint of beef tea, and four ounces of wine, daily.

Feb. 15.—She slept, but talked in her sleep. Now she is dull, heavy, and unwilling to be disturbed; she lies low in bed, and appears much weaker; skin warm, perspiring; tongue cleaner, dusky, covered with a thin fur, through which the red papillæ project; bowels not open, abdomen still tender; pulse 144, small and soft. More dusky spots have appeared about the feet, which are kept wrapped in wool, but those noticed yesterday have not spread at all. The finger is blacker, but the gangrene has not spread. The left arm is now as painful on movement as the right.

Ordered to continue the pill; to take three grains of sesquicarbonate of ammonia every four hours; two pints of beef tea, and six ounces of wine daily.

Feb. 10th.—In the course of yesterday afternoon she became flushed for a short time. She had no sleep during the night, and now lies in the same state as yesterday; pulse 144, very small and soft; one dark loose evacuation from the bowels, passed unconsciously; abdomen still tender; tongue dry down the centre, with a thin fur along the sides. The feet remain as before, but the gangrene is extending along the palmar surface of the middle finger, and has attacked the end of the fourth.

Ordered to continue; to take ten ounces of wine daily.

In the evening she lay low in the bed, shrunk, pale, appearing almost dead; pulse 180, the beats singularly distinct even at that frequency.

Feb. 17th.—Little sleep. She is not so shrunk up, and her expression is, if anything, a little easier. She is so constantly supplied with drink, that the tongue always remains moist, having a thin fur; pulse 180, very small; bowels several times relaxed in the bed. There is a collection of fluid, to the left of the

sacrum, beneath the integuments, which are quite sound, scarcely reddened. The spots on the feet remain the same; the gangrene is said to be slightly spreading on the hand.

The quantity of wine was increased to sixteen ounces, and all thought of treatment beyond present support was given up. She lingered till 4½ A.M. on the following morning.

Body examined thirty-one hours and a half after death.—Limbs all relaxed, blood coagulated in the heart, fluid elsewhere; extensive sugillations; appearance of the feet and hands the same as during life.

A small collection of pus was noticed in the cellular tissue beneath the scalp; the brain and its membranes were quite healthy, excepting that there was an inconsiderable effusion of blood in the pia mater between two of the convolutions on the right side.

The edges of the epiglottis, the larynx and neighbouring parts of the pharynx, and the upper portion of the trachea and œsophagus, presented many little yellow spots as large as poppy seeds, from which pus exuded on section. Some of these spots were surrounded by vascular rings, and bright red specks were noticed in the trachea beyond the point where the purulent deposits ceased. The bronchi were healthy. The pleuræ were free and healthy, containing no appreciable amount of fluid in their cavities. A few purple spots were visible on the front of the lungs, behind they were of an intense dusky purple; on section numerous dark spots appeared, and behind they were much congested. The congestion in one followed pretty closely the line of gravitation of the blood; but in the other, the right, where it did not follow this line, it was intense, the lung being to this extent as dark as a clot of blood, hard, heavy, and containing absolutely no air.

The pericardium contained about an ounce and a half of clear fluid; the heart was firmly contracted, the valves healthy, excepting the mitral, the edges of the aortic flap of which were thickened and slightly rough, but evidently efficient.

Beneath the endocardium, chiefly on the right side, were many small yellow spots surrounded by vascular rings, as already noticed, and at the apex, beneath the pericardium, extending also into the muscular substance of the heart, which was here of a dusky red, were deposits of a larger size, some measuring more than a line in diameter, and of a firmer consistency.

The mucous membrane of the stomach was injected along the rugæ at the cardiac end, elsewhere it appeared healthy, only slightly *mamelonnée,* and thickly sprinkled with bright blood-red spots; there was no blood free in the stomach. Commencing high up in the jejunum, and extending down quite to the rectum, were to be seen many little globular elevations from the size of a mustard seed downwards, from which, on division of the mucous membrane, pus exuded. Some of these appeared to be surrounded by vascular rings, and more than one exhibited traces of ulceration, but they were as much developed in one part of the intestines as in another. Of the appearances of particular parts;—the edge of the ileo-cæcal valve was abraded and crusted, the cæcum and upper part of the colon presented a few red transverse bands, where the mucous membrane was injected, and abraded in points; the Peyer's patches in the ileum were uniformly healthy, as were also the mesenteric glands.

The spleen was rather large, the upper end pale and hard, the lower of the natural appearance; the surface appeared blistered, as it were, in points, and beneath these blisters, at some distance, lay soft yellow deposits, like those already noticed in the larynx, heart, and intestines. Similar deposits existed also in the substance of the left lobe of the liver, and smaller ones were scattered here and there beneath its capsule. The kidneys were both studded over with similar spots, which were softer, of more variable size, and more uniformly surrounded by vascular areolæ here than elsewhere: on section a square, well-defined, bright-yellow, consistent mass, such as is

usually described as the result of capillary phlebitis, was seen in the cortex of the left, and the same change, to a larger extent but not so well defined, appeared over two large spaces in the cortex of the right kidney. Under the microscope the yellow deposits in the various organs were found to consist in great measure of pus globules, and globules of the same appearance were found in the coagula from the aorta. The pancreas, the mucous membrane of the bladder, and the uterus with its appendages, were quite healthy.

On turning the body over, the fluctuating tumour on the back was found to contain about ten ounces of healthy pus, with shreds of cellular tissue lying in a cavity of irregular form, with very thin and soft polished walls, to the left of the lumbar vertebræ, but communicating beneath the last lumbar spinous process with a smaller fistulous cavity on the right of the sacrum. Pus also oozed on pressure from the sacral and lumbar vertebral canal, where it lay external to the membranes of the cord, which posteriorly were thickened and overlaid with puriform lymph, but displayed on division the cauda equina within perfectly healthy. The cartilages and ligaments of the left sacro-lumbar articulation were destroyed, the bone laid bare, and the cavity of this joint communicated with the abscess: the sacro-lumbar spinous ligaments were also destroyed. No dead bone could be found anywhere.

The palmar side of the right middle finger being slit up, disclosed a dark sanious fluid, collected beneath the cuticle; and the soft parts of the last phalanx were dark, infiltrated with a similar fluid, and spotted with little puriform deposits.

As the case stands now, it is quite clear:—the child had disease of one of the vertebral articulations, which was possibly connected with diseased bone, although after a pretty close examination none was discovered. Hence arose the abscess, judging from the delicate nature of its walls, which apparently could not have existed any great length of time, and on this followed

the purulent infiltrations of the different organs which might seem to have taken place through the medium of the blood, though no changes were noticed in the different veins which were divided, and the bodies looking like pus globules must not be assumed to have been certainly such. With this came the symptoms which it so well interprets, and death. And nothing short of this can fully explain the whole case, though during her life, on seemingly sufficient grounds, it was interpreted otherwise.

She was admitted at a time when erysipelas and indolent unhealthy sores were very common; the gangrenous appearance of the hand was particularly pointed out, and though the pain in her loins was the symptom chiefly dwelt upon, the commencement of illness was, by her mother, dated from the rigors. On the observation of the abundant miliary rash, the petechial spots on the feet, and the pain on pressure of the abdomen, there seemed little reason to doubt that the case was one of fever, which diagnosis, it may well be believed, was much confirmed by the discovery, on the following day, that the toes of another patient who had caught fever in the Hospital were sloughing. It was matter of much surprise, that no sore was to be seen on her back, and when at last a collection of pus, apparently similar to that in Case IX., was discovered more by the hand than the eye, so far from throwing a new light on the case, the observations seemed only to confirm yet further the opinion already received concerning the nature of the disease. Had the abscess been noticed, and its real nature recognised at an earlier period, there is no question that the proper method of proceeding would have been to have opened it, and even in the condition in which she lay when it was discovered, small though the chance might have been of her ultimate recovery, dissection says that this was all that art could have done to save her life. She was exhausted to a degree, and the sloughing sore which might have ensued on the evacuation of the abscess

would have been a serious disease; but the one could do no more than destroy life, she was actually dying under the effects of the other.

But,—not to forget the individual case in general questions of treatment,—though the whole seems clear now, it was only a long dissection, and a minute inquiry into the history of the case, which made it so: when the body was first examined so little was thought of the abscess that it was overlooked; yet, without its examination, the case had been almost worthless; nay, worse, it had led to erroneous conclusions. The disease was thought, during life, to be fever, and, apparently, on very good grounds; although it was not typhus, as it was in some respects very analogous to it, it will not be unprofitable to recall those points on which the distinction appeared to depend.

Not on the bodily symptoms certainly, the repeated rigors, indeed, might have aroused suspicion, and had the fact of severe pains on the left side having preceded the rigor by nearly a week been elicited during life, the truth might have been reached; but, as observed, these symptoms were exactly similar, in all their details, to those of other cotemporary cases of severe fever. Nor yet on the state of the intellectual faculties: it is true, that coma, rather than exhaustion, is the form in which death comes most commonly on the thirteenth day; but her head symptoms had never been severe, and the condition of a poor servant child in Shoreditch, though well cared for, is not such as would make one look far to interpret the symptoms of debility, which the appearance of gangrene of the finger so strongly expressed. The occurrence of rigors, and the absence of cerebral symptoms, are, however, the two particulars from the investigation of which most might have been deduced. In both these respects the case differed from ordinary continued fever; in the first, it exactly resembled other cases of purulent infiltration.

Turning now to the examination of the body after death:—the changes were generally referable to two causes, to a ten-

dency to hæmorrhage and purulent infiltration respectively. But these causes may act independently of fever; and, though producing many of the organic changes which are recognised in the body after fever, are only secondary to it, as they may be to other diseases. The strongest fact elicited by dissection, was a negative one; Peyer's glands, with all this disease elsewhere, were healthy. Though the statement that fever has its primary seat in Peyer's glands is not fully borne out by the experience of this country, yet there is no reason to doubt that, when the alimentary canal is affected in fever, they are, almost without exception, the seat of the lesion, and that, when a disease affects the whole length of the bowels without touching these, the probability is against it being fever, even though dissection may not shew, as it did here, the existence of a condition explanatory, at the same time, of all the morbid appearances, and of all the symptoms.

Apart from the objects already mentioned, with which this case has been detailed, a sufficient purpose will have been answered, if it have tended at all to shew that the vagueness implied in the indiscriminate use of the terms typhus and continued fever does not necessarily overcast the whole of the subject. We may rarely arrive at certainty, but we must not cease therefore to strive after it, for the truth is often within reach when we least expect it.

THE END.

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